

Letters to the editor

Science and technology in society

Sir, - Having read with great interest the commendable article by Jon Turney on the study of Science, Technology and Society (STS) (*THES*, May 25), may I suggest the following points:

- That the use of the word "speciality" would be more appropriate perhaps than "specialty" to describe the construct STS. I feel that it might better serve the purpose of the promotion of STS by emphasizing it in its own terminology.
- While the article emphasizes the work of J. D. Bernal which rightly holds a place of paramount importance in the area, I think that it is worth mentioning those people who have seen this area from a different point of

view. A prime example of this is Michael Polanyi's view of the advancement of science by independent initiatives. This is in contradiction to J. D. Bernal's view of central control of science in Britain.

- The work of Thomas Kuhn is mentioned without referring to the principal alternative expounded by Karl Popper. Although the revolutionary aspect of the development of science needs to be emphasized, it is also important to take account of the need for the testing of theories in science.
- STS has suffered like many new disciplines which were developed through the establishment of units to specialize in new areas. This was

especially so during the 1970s when new areas had units set up. Due to funding constraints in the 1980s there has been less money relatively available for some units, resulting in the diversion of funds to mainstream departments at the expense of these more specialized areas.

- I believe it is wrong for STS courses to take on a stronger management sciences cast principally because of the fact that STS has its own distinctive roots and is absorbed into management sciences could lose its real flavour of an understanding of the social consequences of scientific events.
- The effort to bridge the two cultures

has not been one way. There have been people from humanities who have undertaken science, technology and society studies.

Finally, perhaps the best way to marry theory with policy studies which are technically well informed is by undertaking more policy studies which involve a quantitative approach with qualitative analysis. This would bring more competence to STS and hopefully a greater recognition in terms of funding.

Yours faithfully,
BRYCHAN CELFYN THOMAS,
Department of Science,
Polytechnic of Wales.

Grey area

Sir, - For years I have been striving for the gravitas I've felt I needed. Rising 46, on the stout side and greying of beard, I felt I might have made it at last. And when your reporter referred to me as "professorial and dapper" (*THES*, May 18) I believed I was home and dry.

No such luck. A couple of days later, and wearing the same tie which had taken your reporter's fancy, I was standing in the back row of a crowded courtroom observing the weight of the law being brought to bear on 14 polytechnic teachers who were unwilling to identify photographs of students at the request of the judge.

A whippersnapper to an equally nattily dressed professorial colleague to the effect that the inaudibility of the proceedings would not have been acceptable in a lecture theatre brought me a severe judicial rebuke. "The students at the back may find this funny, but I can assure them that it is a serious matter."

"Alas for professorial dignity! Would it be disingenuous to wonder why a judge who can't tell a middle-aged professor from a student at 10 paces feels that teachers should be able to put names to students marked with crosses on a photograph?"

Yours,
STEVEN ROSE,
Professor of Biology,
Open University.

Vital tool

Sir, - I have just returned from overseas to see Peter Mann's article on undergraduates spending on books (*THES*, April 6). While his logic is impeccable, the premises from which he proceeds are those of economics and success in obtaining a degree.

Only once does he hint at the idea that books have value in themselves - just as do a magnetic tape, a musical score or a video cassette. Of course an astute student can get by without purchasing a book but what we have failed to do as educators in recent years is to persuade students - at least in my discipline - that the possession of reference material and of texts which have intrinsic appeal is part of their way of life.

Maybe we are doomed to failure in this regard but I hope that in spite of the established student habits there will be a swing back to some appreciation of the intrinsic worth of the most flexible tool of learning, the book.

Yours faithfully,
L. A. F. DUDLEY,
Professor of surgery,
St Mary's Hospital,
London W2.

Tenure exists

Sir, - In your issue of June 1, the chairman of the University Grants Committee is quoted as saying that the London School of Economics "does not have academic tenure". This statement is incorrect. The LSE has set out its position unambiguously in its response to UGC questions.

Our position is that tenure should be hard to attain but cast iron once attained. We feel that this system does justice both to the requirements of quality and the need to maintain academic freedom.

Yours sincerely,
RALF DAHRENDORF,
Director,
London School of Economics.

Radio research

Sir, - Mr Ungersma (Letters, May 18), in true American fashion, kindly calls me his friend but his letter puzzles me. On one hand he talks about University College, Cardiff, doing research (not the journalism staff, obviously), and on the other, he denigrates such research as having "little to do with the kind of highly practical courses in broadcast journalism that he and I teach."

That may well be true for Mr Ungersma and University College, Cardiff's postgraduate course in Journalism. At the London College of Printing and John Herbert both undertook research to examine areas vital to our teaching, namely, speech communication and education for journalism.

Indeed, it was while doing this research that we reorganized the LCP radio journalism course to enable its products not only to have a clear idea

of newsmen tasks (while being able to perform them competently) but also know where they were headed and what they would need to progress beyond their first job in news reporting. Such a background may help Mr Ungersma understand why one of this year's students (of mature years) is undertaking the commentary on the Queen's birthday parade, for BBC radio.

He suggests that few broadcast news editors are interested in "sociological" studies (his quotes) of their profession whereas my experience tells me differently. Cardiff is a long way from London, otherwise Mr Ungersma might have heard of the formation of a Radio Academy, supported by BBC and Independent Local Radio stations, to do what Mr Ungersma suggests broadcasters are not interested in research, among other things. This illustrates that broadcasters are concerned with their profession and asking themselves questions about their work and their relationship to

Sleuths' trail

Sir, - As the other literary sleuth who is in possession of a copy of the manuscript of *Vile Bodies*, I enjoyed Dr Stannard's entertaining article (*THES*, June 1). As he said, "the extraordinary story of *Vile Bodies*, its composition divided by the traumatic separation which, arguably, converted its author into a 'serious' writer" deserves attention. I am giving it that attention.

I have almost completed a new annotated edition, permission for which has been given by the copyright holders; it includes material on the background to the writing of the book, and on Waugh's attitudes to the Bright Young People, religion, gossip columnists and other relevant subjects. There will be an analysis of the manuscript and a critical survey of the changes Waugh made to the text.

An important element will be the tracing of the change of tone in the book, which Waugh acknowledged in the preface to the 1965 edition, the edition he revised the year before he died. "The composition of *Vile Bodies* was interrupted by a sharp disturbance in my private life and was finished in a very different mood from that in which it was begun. The reader may, perhaps, notice the



Evelyn Waugh at 21 transition from gaiety to bitterness.

The edition will also include an appendix of substantive changes between the manuscript, the (at present) only existing typescript and the 1930 first edition. Finally, there will be a selection of contemporary reviews, including some not published in the *Evelyn Waugh Critical Heritage*, and some selected critical essays. Yours faithfully,
JACQUELINE McDONNELL,
Postdoctoral research fellow,
Department of English Literature,
University of Edinburgh.

Curie appeal

Sir, - I refer to your news item under the heading "Wise women go on parade" (*THES*, May 18).

It is indeed curious the omission of Marie Curie in the 1984 Women into Science and Engineering year, especially as this year marks the fiftieth anniversary of her death. Perhaps even more so since Marie Curie's popular acclaim stems less from her life's work in fundamental research in a man's world but rather from the practical application of her work in the field of cancer therapy and which today still benefits mankind.

We in the foundation established in 1948 as a living tribute in the United Kingdom to this remarkable woman scientist are of course not overlooking this historic anniversary year.

On July 2 Sir Brian Windley who knew Marie Curie, is delivering before a distinguished audience at the Royal Institution, a lecture entitled "The

Impact of Marie Curie". The following day we are holding a service of commemoration at Westminster Abbey in the gracious presence of our royal patron, Queen Elizabeth The Queen Mother, and at which the address is to be given by one of the women WISE is indeed acknowledging. Professor Dorothy Hodgkin. Later the same week The Queen is honouring the foundation by visiting Fairmile, our nursing home for cancer patients in Edinburgh.

Finally, we have launched a commemorative appeal, asking one million women each to send us a £5 anniversary gift in recognition of one of the great pioneers involved in the struggle for equality of opportunity and perhaps arguably, in the quest for scientific knowledge, one of the most renowned scientists of all time.

Yours sincerely,
PATRICIA A. STURGESS,
Executive secretary,
Marie Curie Memorial Foundation.

society - their audiences - and it is sad that Mr Ungersma is not aware of this concern.

Print journalists, like Frank Giles, have written about their concern for where newspaper journalism is taking them and I would have thought that a postgraduate university course in journalism might well be a place where thinking about the role of journalism might be the subject of research.

I forbear to comment on Mr Ungersma's comments on LCP course - following the example set by Sir Tom Hopkinson - out of respect for Sir Tom; he kindly lent me his papers on the background to Britain's first postgraduate journalism course and I examined it in my thesis on the relationship between academics and journalism. "Grub Street and academia".

Yours,
FRED HUNTER,
Senior Lecturer, radio journalism,
London College of Printing.

Do's and don'ts

Sir, - "Don't do as I say, don't do as I do, don't do anything." That seems to be the message students' unions are receiving from the government, via the University Grants Committee, which, far from encouraging initiative and a desire for greater financial independence appears to have firm instructions to strangle any innovative spirit at birth.

My own students' union wishes to attract commercial organizations, such as the banks, to operate in our building, providing a valuable service to our members and extra income for the union, income which in turn could be used to increase the range of services we give to our students and to give some measure of financial independence in these times of financial squeezes.

The UGC says we cannot do this, even though we have offered to pay over to them a commercial rent (independently assessed) and retain for ourselves an additional sum as a reward for our own efforts. As a consequence both our members and the taxpayer are left worse off, and no one benefits. So much for encouraging enterprise.

Yours faithfully,
BRENDAN RUSSELL,
Deputy president finance,
Durham Students' Union.

Point taken

Sir, - You quote the vice-chancellor of the University of Buckingham (*THES*, June 1) as mentioning your journal in particular among those whose criticism of that institution has been biased. In the same report you mention the university's deficit for 1983 and specifically note the expenditure of over £70,000 on obtaining the Charter. What you do not include in your report is the £83,000 which was spent on bursaries to assist students to go to Buckingham. The vice-chancellor's point is proven.

Yours sincerely,
ARTHUR POLLARD,
Sand Hall, Station Road,
North Cave,
North Humberside.

New routes to a degree

Sir, - Christopher Clark comments on attempt to promote alternative routes into higher education via "vocational excellence in education" (*THES*, May 25). In particular, he says the access type student as a threat to academic standards. A serious charge but we are not caricatures rather than academics.

What does Clark mean when he suggests that some groups "by certain ethnic, social (sic) or category" enjoy "virtual high admission" or "access to courses"? Here he confuses the access courses in targeting to ment to those underrepresented in higher education with an offer place based on successful completion of an access course.

Furthermore, acceptance of students is held to encourage a range of standards and high failure rates. Clearly, there are instances where access arrangements have not worked their promise but they are invariably where the involvement of the polytechnic could have been greater. The lesson to be drawn is abandonment but scrutiny is a must.

Clark would like to see the type student go through some of the hurdles of traditional qualifications but how does he square the evidence that A levels are only moderately associated with success in most subjects?

Where is the contradiction in a desire to achieve excellence and move toward an alternative system of accreditation? Where does education tutors have the opportunity to monitor and assess directly the range of skills, knowledge and experience deemed appropriate for admission to a particular degree course?

GARETH PARRY
Open College of South London
South London College.

Beta plus

Sir, - In response to Mr Love's letter (*THES*, May 25) concerning the proposed new Business Education Teachers' Association, I would wish to make the following comments.

BETA is an organization with a principal aim of providing a forum for discussion for teachers of business subjects mainly in polytechnic institutions of higher education. It attempts to achieve this through national and international conferences, working parties of degree course leaders, collaborative research and the funding of a journal.

Mr Love implies that representatives of organized labour and other views are excluded from these activities. This is not so. Many of our delegates to our conferences and working parties are union members and we are free to express our views from a perspective. Most of our activities are concerned with the teaching and learning of business courses; our forthcoming conference on numeracy in business education provides such an example.

The conference leader to which Mr Love referred was intended to provide the extent of participation for the parties interested in business education. We hope that this clarifies the situation.

Yours faithfully,
JOHN LINES,
Chairman,
DAVID SHELTON,
Secretary,
Business Education Teachers' Association.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and written on one side of the paper. The editor reserves the right to cut or amend letters as necessary.

In-service fees change considered

by Patricia Santinelli

The Government's advisory body on teacher training is considering a new system of full-cost fees for in-service education and training provided by universities and colleges.

If agreed, the new arrangements would form part of the Advisory Committee on the Supply and Education of Teachers' recommendations to set up 20 area committees to coordinate in-service training provision throughout the country. These were first proposed to ACSET in March by the University Council for the Education of Teachers.

Under present policy, fees for in-service training provided in the university and public sector are charged at the home student subsidized fee rate. The cost to the local education authority is well below the full level since the tuition fee paid by the second level covers only a small part of the cost of the course. The rest is met from central funds.

Under the new system the cost of the training covered would be met almost entirely from fee income. The allowance made for it in the institution's recurrent grant or advanced further education pooling arrangements would be correspondingly reduced.

The committee believes that full-cost fees would stimulate providing institutions to respond to demand. But it accepts they might find it difficult to obtain accurate information on whether take-up would be sufficient to cover costs.

It sees the main drawback could be a reduction in the cost of in-service work if higher fees have to be borne from local authority budgets, without any parallel measures to safeguard expenditure on INSET.

It proposes two possible mechanisms for safeguarding expenditure - INSET pooling and direct grant. It points out that under current pooling arrangements (provided authorities had a joint agreement) local authorities would be able to pool full-cost fees. This would remove the deterrent effect and substantially increase the size of the INSET pool.

Another method for protecting expenditure would be to seek more direct central Government grants towards teachers' expenses incurred during in-service training.

ACSET drew back this week from recommending to the Secretary of State for Education that all special education initial teacher training courses should be phased out by 1986. Sir Keith has now been advised that such courses should be phased out as soon as possible, but not before adequate arrangements for in-service courses existed in this field.



IT BEATS ME WHAT ELSE THEY CAN THINK OF CUTTING BACK ON.

Former director alleges favouritism in brain unit closure

The former director of the Medical Research Council's neurochemical pharmacology unit in Cambridge, whose imminent closure was revealed last week, has accused the council of shutting a successful unit to benefit the prestigious Cambridge Laboratory of Molecular Biology.

The council told the 15 tenured staff of the neurochemical unit that it is to be wound up because a "substantial replacement" for the previous director, Dr Leslie Iverson, cannot be found. Dr Iverson, who left Cambridge two and a half years ago to join the drug

Queen's ordered to shorten degrees

by Paul McGill

The University Grants Committee has told Queen's University Belfast that it should cut most of its degree courses from four years to three. It has also suggested that some of the minority subjects should be discontinued.

The UGC was asked by the Northern Ireland Department of Education to advise on the issues, and details of its "interim guidance" have been sent by the chairman, Sir Peter Swinnerton-Dyer, in a letter to the vice-chancellor Dr Peter Froggatt. A UGC official said the advice related specifically to Queen's and was not part of a general policy on the subject.

Sir Peter says the university should move towards the pattern obtaining in England and Wales. "That is, the

generality of undergraduate courses should be of three years, with modern language courses - involving a compulsory year abroad - lasting for four years. The university might aim to begin the reorganization with the intake at the earliest practical date," he writes.

The only faculty referred to specifically is law, where the UGC rejects the case for maintaining a longer course and concludes that movement towards a shorter programme should proceed in parallel with courses elsewhere in the university.

There is mixed news for the minority subjects such as maths, Greek, Celtic, library and information studies, history and philosophy of science, Semitic studies, music, scholastic philosophy and Slavonic studies. The UGC

accepts that there are minority subjects which it is desirable or necessary to maintain in view of the physical isolation of the cultural needs of Northern Ireland. This may point to the continuation of some four year courses, it says.

The bad news is that while some other minority subjects may be able to stay alive over three years, "there might be room for debate whether Queen's needs to continue to offer its present range of minority subjects. There is also the related question of entire courses which, if they were run in Great Britain, might be of doubtful viability because of low numbers but which Queen's would wish to maintain."

The advice to Queen's was based on reports from the university and from

visits to Belfast in March by the UGC arts and social studies sub-committee. But the Association of University Teachers at Queen's dismissed the treatment of law as "a 12 minute trial" and said it would take it up with the AUT nationally this "high handed action" in deciding the fate of the faculty without proper consultation.

More generally, it claimed that if student intake is maintained, the move to three year courses would lead to a drop of about 20 per cent in student numbers, producing a corresponding drop in income.

"The impression given is that English orthodoxy is to be imposed on all the universities. No account appears to have been taken of the quality of our graduates or of virtually any of the academic arguments," the AUT said.

Copyright users stand firm on changes

by Jon Turney
Science Correspondent

Copyright users met this week to stiffen their resolve to resist moves by publishers which could undermine existing rights to reproduce documents.

A meeting convened by ASLIB, now known as the Association for Information Management, was attended by officers of the Committee of Vice Chancellors and Principals, the Royal Society and the Association of County Councils. All agreed that while negotiations must continue on licence fees for multiple copying, they must reaffirm the need for free single copying for private study and research.

Long-standing negotiations between the Publishers Association and the CVP have now broken down because of university resistance to the publishers' insistence that any licensing scheme must cover single copying. The Royal Society, other learned societies and the research councils are also anxious to protect single copying, seen as vital for scientific research.

The ASLIB meeting arose from a feeling that the publishers have organized a better lobby than users to put their case to the Home Office, currently deliberating over new copyright legislation.

Information providers will shortly announce a new organization which

will press for copyright reforms in the wake of the Cabinet Office's information technology advisory panel report last year on commercializing information.

The umbrella organization for the information industries proposed in the report will be called the Confederation of Information and Communications Industries (CICI) and will bring together the Publishers Association with film, video, and software publishers and telecommunications interests. They will press for changes in copyright law to accommodate new technologies, including photocopying, audio and video recording and computer programs.

Although the new grouping led by ASLIB and the CICI may come into conflict, their members will also have interests in common when they combine roles as publishers and users.

College to split staff

The Royal College of Art is to split its academic staff, with full-time lecturers given permanent contracts up to the age of 60 and part-time staff treated as "visiting tutors" to be paid by the day for their work.

The plan has already been approved in principle by the college senate and council which includes representatives of the Association of University Teachers, although most "security and parity" is still being sought by concerned part-time staff.

More than 60 part-time staff will be affected by the new contractual arrangements which will probably mean less pay overall and give far greater power to departmental heads to decide just how much work lecturers will be asked to do.

The changes are part of a general package of reforms by the college aimed at saving £193,000, 5 per cent of the total budget, as requested by Mr Peter Brooke, under secretary for higher education, in a letter to the college last winter, for each of the next two years.

Mr Brooke called for the extra cuts after concern about the way the college was being managed, and he warned that further cuts would be expected in future if there was no improvement.

But almost all the part-time staff feel the new arrangements are "divisive and discriminatory" and fundamental to undermine their status at the college. They have formed an ad hoc committee and issued a statement roundly condemning the plan. Opposition to the new contracts is planned on the fact that no details of the plan have yet been agreed. They also believe the plan could undermine the RCA's long established traditions, engaging practising professional artists to come in to teach while continuing with their work.

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Photography staff at Trent Polytechnic capture a new use for niches in Southwell Minster. This is one of 50 of their pictures included in an exhibition entitled A Day in the Life of Southwell Minster, where it will run until the end of next month.

Labour call for arbitration

continued from front page

The other unions, the Association of Principals of Colleges, the National Society for Art Education and the Association of Polytechnic Teachers, all favour arbitration. The APT in particular has made clear it will not contemplate industrial action unless arbitration is rejected by the employers.

But Labour leaders are convinced they have cleared the way for arbitration with Sir Keith Joseph, Secretary of State for Education and Science, who has previously publicly doubted its appropriateness in the schools.

Meanwhile Nathe has told its 800 branches to vote on withdrawal of voluntary duties from Monday if talks fail, with a one-day strike on June 21.

Only members actively engaged in examinations will be exempt from the strike action.

There are signs that the pay dispute in the universities may escalate. Non-teaching unions are advising their members to keep up the pressure but following last week's day of action manual workers at Warwick University have been told they will be suspended without pay if they take further action.

Further job losses feared

Students and staff at Goldsmiths' College in London fear that further compulsory redundancies may be on the way. The college is already threatening to introduce compulsory redundancies - thought to be the first in London - for two full-time posts and a number of part-time appointments on the visual communications course.

Students have conducted two occupations in protest at the present threat, and are planning further action. Staff at the college, members of the National Association of Teachers in Further and Higher Education, are to meet next week to discuss a half-day strike.

Now both groups fear the college is planning to announce new compulsory staff cutbacks, particularly in the fine arts department. A Nathe official said: "The college could avoid compulsory redundancies by both internal modifications and by renegotiating its financial situation with the Department of Education and Science."

Staff have put forward a series of recommendations to the collegiality, the college's governing body, which meets next month.

The local branch of Nathe has already given approval for the strike arrangements to be made.

Pouring oil on troubled waters

Middlesex Polytechnic this week decided to tighten up controls over its short-course programme following a number of complaints about the way a group of special courses in water technology have been run.

Anxieties centre on a diploma course in water supply and public health engineering run in the first term of the academic year. An internal inquiry found "material irregularity" in the examinations held late December, following complaints that the course leader had said that assessment would be by project work and viva only.

In the event examinations were set, one at only 24 hours' notice. When nine students appealed against their failure it was disclosed that no course or examination regulations for the course existed.

The nine were allowed to proceed to the second term course in water quality control and management, pending their appeal and six of them last month sat an examination designed to reassess their performance on the first course.

any money by disbanning the unit, whose staff will have to be redeployed elsewhere. The neurochemical pharmacology laboratory was rehoused in a new building three years ago at a cost over £1m, and Dr Iverson suggests the council intends the building to be handed over to another establishment.

"It is hard to avoid the impression that the Laboratory of Molecular Biology is not again being favoured at the expense of other areas of medical research," he writes.

Council headquarters say that a management group will now consider the implications of closure.

The dispute over the neurochemical unit is the latest in a series of controversies over MRC unit closures. Dr Iverson said this week the appointment procedure for his successor showed "a record of incompetence and bungling, which the MRC is notorious for".

And he added that Sir James Gowans, a member of the MRC selection panel set up to find a new director

DON'S DIARY

SUNDAY

Up at eight to face the debris left by a gaggle of British Geomorphologists who had converged on Cheltenham over the weekend. As the only resident geographer on campus I had freely offered coffee to all and sundry, who had gathered in my sitting room to set the world to rights as is the way of geographers talking shop. Finding a pile of project work in humanistic geography to pick through, the geomorphologists declared themselves happy to be dealing with pebbles, slopes, fossils and other orderly and rational phenomena. The conference organizer, having stayed overnight, bolts from the kitchen at 8.30am slightly harassed, to gather together minibuses for the day's field excursions.

A weekend as duty warden involves little work but hampers mobility because a presence on site and at meals is expected. Sunday afternoon optimizes the outsiders' image of Cheltenham: a leisurely college lunch, a brief spell of idleness, tennis, then tea on the lawn with my tennis partner and the conference organizer, now relieved of her duties. We sit in the sunshine and we celebrate the success of her organization.

Having procrastinated all day, I settle down to work at about six, and work steadily and conscientiously through a mountain of marking.

MONDAY

The penultimate teaching week in Cheltenham as examinations approach, so lecture attendance is becoming unpredictable. A hasty departmental gathering over coffee reports back from last term's CNA validation of the BA Honours course, reviews the implications of the NAB exercise, and outlines proposed IMI visits. We feel more than ever like performing seals; can we keep going through successive hoops while keeping the ball balanced on our noses?

Invigorated by a lively revision session with a dozen third-years on the geography of the EEC covering topics from French population policy and European regional development to the miners' strike and the increase in oilseed rape. Is the best source for a geography degree a subscription to *The Times*? The butterfly approach is further intensified by a progression of second-years thinking about dissertation topics. My mind fits around the whole gamut of human geography as they develop tentative proposals.

A faintly unsatisfactory day is capped by another evening's drudge marking - the last of the course-work assignments.

TUESDAY

Up early in preparation for a day's fieldwork, taking BA Year 1, to Telford. All have arrived by 8.30 and are piled on the coach who packed lunches. We steam up the M5, M6 and M54 and arrive in only an hour and a half. The field trip aims to cross course boundaries dealing with the human environment and with methods of inquiry. We find an interesting comparison between the planners' view and the observed subjective reality. They gather impressions of superb urban motorways and a district road system of dual carriage-way standard, but a dearth of buses leaving people stranded in their housing estates. A town of 107,000 people with 20 per cent unemployed has offices and public buildings bravely under construction in the town centre, and there is lots of public optimism about attracting high-tech industry to the enterprise zone with its newly improved communications. The reality to individuals stimulates student reaction and involvement; with any luck they

will have learned something about themselves as well as Telford. Surprisingly weary I settle to another quiet duty evening. There are no interruptions to my homework on the poly where I'm being interviewed on Thursday.

WEDNESDAY

Up early again, preparing for my trip to Devon arriving in Plymouth in the early afternoon. The poly is in a dense city-centre site, a vocational factory, swarming with students like worker-bees, overlooked by workmen still demolishing the cladding of the science faculty which collapsed at New Year. I roam freely and unchallenged in and around the site.

At 5.15 prompt I meet Pat, a college friend I've not seen for five years since her marriage. We meet each other with real pleasure and the five years melt away as if they had never happened. Vastly pregnant now and about to leave her job as a solicitor, she and I ponder the reality of choices available to women. The evening's conversation attempts to fill in a five-year gap, and provides me with local information about Plymouth and its poly.

THURSDAY

Pat drops me in Plymouth near the poly and I pass ten minutes in the local bookshop. I wend my way slowly to the faculty of science office to arrive the statutory five minutes early.

A formal but rather unstructured meeting of the department with the candidates is enlivened by instant coffee and efforts to open intractable windows. Each candidate is asked to give a brief life history; fortunately I am first so have the advantage of both setting the style and holding interest for the novelty of the first few minutes. As we talk, the candidates weigh each other up: the raw research student shadow boxes with the experienced teacher; one candidate enmeshes himself in his own verbiage while another adopts a laid-back stance. One woman, having arrived late, talks of her career development in terms of romantic attachments, thereby instantly confirming all male prejudices about the frivolous nature of female job applications.

The job is offered to the laid-back candidate who isn't able to make a decision. He is given until Monday to sort his ideas out. I am told that I shall be offered it if he refuses it, and that my name will go forward for another similar post to be interviewed for shortly. I forget to give in my expenses form. The train going home has no buffet.

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FRIDAY

No interesting post and no suitable jobs in *The Times*. I disengage my brain and gather my papers and repack my rucksack ready to go to Cambridge for a meeting of teaching groups on Saturday morning about the preparation of new A level teaching materials incorporating humanistic approaches. I hear from the head of department that the Cambridge Committee has refused to accept me as substitute for the group leader so find I have wasted by packing efforts, and that the South Western group will not be represented.

SATURDAY

Saturday is Cup Final Day and a day for socializing, being released from the visit to Cambridge. I make a quick trip to the geography department and thence to Sainsbury. I whirl round the kitchen chopping and liquidizing and slow-cooking in preparation for the visit of an invalid colleague and his wife in the evening, then slope off to grab a quick college lunch.

I haul the bike out again to watch the Cup Final with a friend and his family. It is a splendid afternoon with the baby alternately whining and feeding, and the toddler falling over and pulling all his books about, while Watford beats Everton.

Hilary Winchester

The author is at present lecturer in human geography at the College of St. Paul and St. Mary, Cheltenham and is moving to Plymouth Polytechnic in September.



Adult project fills the gap

by Maggie Richards

A major new initiative in adult education is being planned in a bid to bridge the educational gap between the needs of students at basic levels and those entering higher education.

The project would involve a collaborative effort between three of the major providers in adult education - the Open University, the Workers' Educational Association and Ruskin College at Oxford.

Each organization would play a part in providing teaching components for the project. Courses would be aimed at those people who have been most disadvantaged by existing educational provision and those who gained little from their initial schooling.

Progress of students during the three-year project would be monitored and the findings collated to form an

important new piece of research into this area of adult education. Funding has yet to be agreed, but a trust fund has expressed interest in the project and the Department of Education and Science is studying the proposals.

The project has been devised by representatives of the WEA's Berkshire, Buckinghamshire and Oxfordshire district, in conjunction with staff from Ruskin College and the Open University. Mr. Linden West, district secretary of the WEA, explained: "The three agencies have considered ways in which together they might develop various learning opportunities for those disadvantaged by existing provision."

"There has been some useful work in this area. We feel major agencies like ourselves by collaborating may be able to use our collective resources and expertise," he added. "The three agen-

cies considered this pilot project one of national significance, providing experience which could be of importance nationally in the development of teaching materials."

If the project goes ahead, it will provide distance teaching materials, while the WEA will offer personal tuition. Ruskin College will be able to contribute a residential element.

About 150 students would participate in the project initially. It would be drawn from WEA work on unemployed people, working women, and disadvantaged groups. Ruskin would draw on its work with community groups in the Oxford area while the OU would identify progressive students from among the students on its own courses, and the deemed in need of some preparatory study.

Alvey cash starts to flow

by Jon Turney and Olga Wojtas

Edinburgh and Loughborough universities are the main academic beneficiaries of three new major projects backed by the Alvey directorate, who administer the £350m British programme to develop "fifth generation" computers.

Edinburgh will receive £3m over the next five years for work on a speech-driven word processor, in a project coordinated by Plessey. Edinburgh will also be involved in a project led by GEC to build new automated manufacturing systems, and Loughborough will contribute to both of these studies and to a third on mobile information systems.

The three new projects complete the first set of four "demonstrator" projects designed to take British companies well down the road to new products, and mark the start of a flow of Alvey funds into universities.

Academic work under the Alvey programme will receive 100 per cent backing, but university groups must all have industrial partners, whose own research only gets 50 per cent funding. All of the four demonstrator projects now announced will be pursued by large consortia, and over £40m of Alvey money has now been committed to these and other schemes.

Other universities involved in the newly announced projects include Cambridge, Surrey, Sussex and Leeds; and the Open University.

Waiver clause campaign gathers strength

The campaign against the use of waiver clauses, under which contract research staff sign away key employment rights, has scored further successes.

Leaders of the Association of University Teachers hope that other examiners will follow the lead of Edinburgh, Bristol and Birkbeck College, London, in abolishing or restricting the requirement that staff on short-term contracts, mostly researchers, should

give up their rights to redundancy pay and protection from unfair dismissal.

At Bristol University the senate has approved a package which restricts the use of waiver clauses to the first appointment. If contracts are extended by six months or more, or if they sign a second contract without break of service, staff will not have to sign a waiver clause.

They will also be exempt if their

service has been continued by recourse to a new contingency fund which is specially intended to bridge the gap between contracts. The package originated with a university working party set up after pressure from AUT research staff there.

The AUT is advising all its local associations to press comparable demands for contract research staff.

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Caution over US space plan

by Jon Turney
Science Correspondent

British scientists are wary of American proposals to build a space station for the 1990s. Space researchers gathered at the Rutherford Appleton laboratory last week to discuss the US plans, and expressed fears - shared by some American colleagues - that the \$8 billion project will drain funds from other missions.

European governments are also moving cautiously on American invitations to contribute to the space station, and will tell President Reagan at this week's summit meeting in London they need time to look at the plans in detail.

However, indications are that Europe will join the project, if not as soon as the US National Aeronautics and Space Administration might wish, and European scientists will work through the European Space Agency to try to extract the maximum benefit from the station.

NASA administrator James Beggs toured European capitals earlier this year touting for foreign backing for the space station, which NASA has sold to the US government as the logical follow-up to the successes of the space shuttle.

Next year's US science budget includes \$150m planning funds for the project. NASA would like European governments to commit 10 per cent on top of the total estimated US expenditure of \$3 bn before the end of the year.

But a senior official in the British Department of Trade and Industry said that while there was great interest in the project Europe needed to know more about the cost and rules of access to industrial contracts. The UK line is that a formal commitment to participate is unlikely before autumn 1985, thus disappointing those who hoped for an agreed position on collaboration in space from the 1984 economic summit.

Scientific reservations about the project centre on cost and on the uses of a manned vehicle. Pure space scientists point out that a space station with astronauts aboard is unsuitable for many experiments because of atmospheric contamination and lack of stability. They pin their hopes on free-flying satellites which might be launched from a space station.

The question then is whether such a launch platform would do the job cheaper than conventional launchers like the shuttle or the ESA's Ariane rocket. Scenarios here are increased by the history of the shuttle which has done little for cost-effectiveness of space science missions in spite of earlier studies suggesting great benefits. The UK meeting concluded that more detailed cost-benefit studies were needed to clarify the likely advantages of the space station.

MP joins ultra vires wrangle

by David Jobbins

A leading Conservative MP has tabled a Commons question on the alleged misuse of student union funds to aid the striking miners.

Sir William van Straubenzee, chairman of the education and science select committee, is to ask the Attorney General, Sir Michael Havers, about the effectiveness of guidelines issued last year to contract ultra vires payments by student unions.

Sir Michael's office has had a number of complaints and inquiries about proposed or actual payments to the National Union of Mineworkers. In one instance, University College Cardiff was warned that a proposed £1,000 donation would be outside the union's charitable objects and therefore illegal.

The union treasurer and its deputy president have refused to authorize the payment, and face the sack after a no confidence vote by a general meeting paved the way for a referendum next week on their action.

A dossier of alleged ultra vires payments by the Essex University

union is being considered by the Treasury Solicitor, including the hire of a coach to take students to a miners' picket line at Harwich docks. And at Thames Polytechnic, a £500 fee for a speaking engagement by a Kent miner is also being referred to the Attorney General.

There is concern among Conservative students and MPs that the guidelines are not being effectively enforced, although the only direct payment has been at Thames Polytechnic.

Elsewhere as at Cardiff and York constitutional wrangles have prevented the money from being handed over.

The guidelines say: "The Attorney General accepts that students may often wish to express a view on a current dispute, particularly if it be centred on the neighbourhood of the college of which they are students. There is, however, no justification in his view for applying charitable funds in support of either side to the dispute."

Both the Attorney General's office and the Charities Commission confirm

that where unions are registered charities, there is no distinction between direct payments to the National Union of Mineworkers and contributions towards hardship funds for striking miners' dependents, although students are free to make individual contributions.

Equally, the Attorney General's office expressed the view that funds raised independently of the union block grant such as bar profits could not be used outside the objects of the union itself. Hire of coaches from union funds is also ultra vires, according to the office.

Students of the proposed University of Ulster this week claimed a victory when they enlisted the support of the Ulster Polytechnic governors in resisting a clause in the proposed charter and statutes which they claim would impose new restrictions on their activities.

Despite the probability that it would delay granting of the charter beyond September, the governors have voted to send the document back to the Privy Council once more expressing objections to the clause.

Vocational go-ahead

Ministers are expected to approve Technical Vocational Education Initiative projects in the 22 local authorities whose bids were rejected earlier this year, by this summer or at the latest early autumn.

Mr David Young, chairman of the Manpower Services Commission, last week that after a meeting with the chief education officers of the authorities concerned, he had written to ministers seeking their agreement for the start of a range of projects by September 1985. Each project would have to be approved by the National Steering Group which oversees the scheme.

Geoffrey Cass



A picture on page 11 of *The Times* May 25 was wrongly captioned Mr Geoffrey Cass, chief executive of the Cambridge University Press. The picture was of Mr Michael Black, editorial director, who piloted the School Mathematics Project through the press in the 1960s.

Merger likely

Two Tyneside colleges could merge the near future to become Scotland's third largest further education college. The education committee of Tyneside Regional Council, which runs the Kingsway Technical College and the College of Commerce, has just approved a discussion document on the merger, which is expected to be ratified by the full council at the end of this month.

Leaders slip in PhD league

by Jon Turney
Science Correspondent

Cambridge University emerges as the most consistent high scorer in the latest science PhD submission stakes, although it has fallen from first to third place.

Figures compiled by the Science and Engineering Research Council for last week that after a meeting with the chief education officers of the authorities concerned, he had written to ministers seeking their agreement for the start of a range of projects by September 1985. Each project would have to be approved by the National Steering Group which oversees the scheme.

But both Oxford and Nottingham, who figured in the top three in the last SERC survey, have slipped down the rankings this time. Add the fact that making this time, with 159 students, is the largest postgraduate scientific institution and its record looks still better.

Gwent backs down over dismissal notices

by David Jobbins

Industrial action by college lecturers in Gwent has been called off following withdrawal of dismissal notices to staff who had refused to accept longer teaching hours.

Lighting strikes planned for this week by members of the National Association of Teachers in Further and Higher Education were dropped - and a threatened week-long stoppage scheduled for Monday is also off.

Intense political and industrial pressure on the Labour-controlled authority led to the climbdown over the notices, which terminated existing contracts unilaterally and offered management an extra one or two hours of class contact per week for 410 lecturers on the two lowest scales.

Natthe is now claiming its third victory in a row over authorities who have tried to impose worsened conditions of service by unilaterally seeking to bring local agreements into line with the inferior national agreement. The union successfully fought off attempts

The SERC diplomatically declines to work out the percentages indicated by its survey returns, and these figures relate only to universities with 50 or more students registered. The council also stresses that university figures mask differences between individual departments.

However, the top three in each year are well above the average completion rate for all universities, which has stayed roughly constant at just under 50 per cent.

At the low end of the scale this year are Swansea, with nine completions out of a possible 31, or 29 per cent; University College London, with 19 completions out of 60 giving 31.6 per cent; Warwick, with 12 out of 37 or 32.4 per cent and Bradford, with 15 completions out of 43, a total of 34.8 per cent. All the other universities with more than 30 SERC registered doctoral students achieved over 40 per cent.

The council also expresses the results of the survey for individual grant-awarding boards. On this reckoning, the nuclear physicists are the most virtuous, with 70 per cent submitting within four years. The SERC science and astronomy, space and radio boards come out near the average with 52 per cent and 50 per cent respectively, and the engineering board is rather behind with 38 per cent.

As last year, the band of students supported on multi-disciplinary projects under the joint committee of the SERC and the Economic and Social Research Council have the poorest completion record. Only 17 out of 64 joint committee students starting in 1979 had submitted four years later, or 26.5 per cent.

However, this is an improvement on the 1978 joint committee students, who only managed a completion rate of 20 per cent.

Council aims for wider audience

One thousand examples of research reported to the Economic and Social Research Council have been listed in a handbook just published as part of its continuing campaign to market its output.

Sir Douglas Hague, chairman of the ESRC, has made it a personal goal to ensure that the results of council-backed research have a far greater impact on current social and economic policy-making than has often happened.

Sir Douglas reaffirms this view in the preface to the handbook, intended as a companion to the annual comprehensive volume of *Research Supported*.

Sir Douglas says some studies are written in the technical jargon of an academic discipline "too often impenetrable to the layman", while others receive only a limited readership in academic journals.

Since the beginning of the year Sir Douglas also held informal meetings with groups of backbench MPs and industrialists to tell them about the council's work. He is also keen to see that future research grants have an element earmarked to cover the time and care needed to write up the findings "in plain English".

Earlier this year Sir Douglas even appeared in a series of short late-night advertisements on Anglia Television promoting the council's open door scheme.

1,000 *Items of Social Science Research*, £1 from School Government Publishing Company, Derby House, Bletchingly Road, Merstham, Surrey.



Barry Edwards (left), senior lecturer in theatre at Crewe and Alsager College of Higher Education, teams up with his former students Nenagh Watson and David Mason, who have formed themselves into a puppet theatre company. Mr Edwards is directing Watson & Mason in a play whose central character, Toe, makes up the foursome pictured.

Strathclyde moves fast to avoid £1.8m deficit

by Olga Wojtas
Scottish Correspondent

Strathclyde University has launched a series of emergency savings measures to avoid a projected deficit next year of £1.8m.

The university, which ended its last financial year with a surplus of more than £700,000, is now seeking staff savings of £600,000 over the next 18 months, and a £1.2m cut in proposed non-salary spending.

There are fears within the university that this will mean cuts in staff, but Mr Louis McCougan, the university bursar, stressed that no complete freeze was anticipated. However, he warned that staffing committees would have to be "more and more selective" about appointments being made.

The non-salary savings, which were also approved by the university's finance committee last week, are understood to fall most heavily on the library and repair and maintenance. These proposals are expected to be ratified next month by the university court.

Strathclyde has been hit by a £750,000 cut in its expected block grant from the University Grants Committee, as well as a £100,000 VAT bill for new buildings.

But Mr David Morrell, the university registrar, admitted the university had discovered it was spending more than it had expected. "All universities are supposed to be restructuring, and it may be that the need at Strathclyde at this particular time is for more leadership and senior appointments," he said.

Strathclyde has recently appointed a research and development coordinator, and while replacing a chair in law and deputy directorship of continuing education, made two appointments in each case.

While many staff have been alarmed by the university's financial situation, opinion is mixed. One senior academic commented: "You've got to spend your way out of trouble, and this hasn't been done without thinking we are going to recoup the money."

Newcastle plans technology centre

Newcastle University and Newcastle Polytechnic are discussing the establishment of a joint technology centre with local authorities and other education institutions to market their services and support local industry.

The scheme has just been promised more than £100,000 pump-priming money from the EEC and the project has been agreed in principle by Newcastle City Council and Tyne and Wear County Council. It goes to the university senate and the polytechnic council later this term.

The proposals are on a blueprint drawn up by a firm of consultants for a small building with office, conference and small light industrial units.

The other institutions involved are Sunderland Polytechnic and the Newcastle College of Arts and Technology. The Department of Trade and Industry has also been involved, though a request for funding was refused.

Keat University plans to open a science research and development centre on its Canterbury campus in 1986. The centre will not be a science park but will be an extension to accommodate the research and development necessary for new products.



Steven Harris, who left school at 16 without qualifications and worked as a meat porter at Smithfield Market, London, has won a £10,000 fashion prize which will enable him to take a two-year postgraduate course at the Royal College of Art. He is just finishing a degree course in fashion design at Harrow College of Higher Education.

Mr Harris, who wins a scholarship and a travel award, is pictured with his Harrow colleague Jackie Wilmott (left), and Christine Burn of Ravensbourne College of Art who were finalists.

Bishop of Liverpool calls for an end to YTS time limit

The Bishop of Liverpool, who chairs the Manpower Services Commission Merseyside area manpower board, called this week for an end to the one-year limit on the Youth Training Scheme and other Government programmes.

The Rt Rev David Sheppard said in an interview published in the latest edition of the *Centre for Employment Initiatives' journal Initiative* that he wanted to see a system suited to individual needs and one which had no fixed time period.

"The most harmful thing about all the 12-month schemes is what happens afterwards," he said.

Dr Sheppard reiterated his proposal put forward in his book *Blas For the Poor* that all people up to the age of 19 should be taken out of the labour market.

He did not believe this would increase young people's alienation and frustration against society, provided they were offered really good training: good experience, either in school, college, apprenticeship, or training

scheme. Dr Sheppard admitted that he had argued with ministers against the cuts in Mode B schemes and the shift towards Mode A provision as this was their decision rather than the commission's.

This was particularly important as in Merseyside Mode A schemes were not being run by employers, for obvious reasons, but by local authorities and national training bodies.

"So I have argued hotly with them," he said. "What I have said about the reduction in Mode B is that we have

argued with and bullied the sponsors for better premises, more factory-style premises, to run vocational style of training. Now we have been forced to cut back some of the very people who were supposed to meet our requirements."

The Bishop added that as far as the wider debate was concerned, at the end of whatever length training, the labour market could not provide jobs. It should not be forgotten that there were "real" jobs to be done in the community.

to defend the silliness of structuralism" - which was all that I was getting at.

Besides sending Catherine Belsey her free copy of the Oxford English Dictionary - she has to receive the prize for covertly investing as well as explanation - I will also be sending her reading list. She promises that "if the thinking of the Labour Party were to take account of the theories of poststructuralism, it might be able to analyse the state of Britain in ways which would more effectively contest the appeal to the electorate of Conservative common sense."

I am not in the least dismissive of the offer (and I assume it was not tongue in cheek). We had the political battle at the polls because we had long since lost the intellectual battle. Politicians and the intellectual debate are constrained by the defunct ideas of long dead academics more than we ever understood. Poststructuralism here I come. They'll soon be talking of nothing else in the bar of the Blackburn Trades Club.

Jack Straw
The author is Labour MP for Blackburn.

Change in travel grants greeted by Irish outcry

The Government's decision to change the method of paying student travel grants has provoked fury in Northern Ireland.

The under secretary of state for education, Mr Nicholas Scott, has rejected appeals to release the information on which he based his decision to stay in line with England and Wales rather than retain the present system, as Scotland is doing.

He has also stated that the question of maintaining parity with England and Wales was not one which it would be appropriate for him to discuss with the bodies of students, education and library boards and all 17 Northern Ireland MPs.

The matter came to a head when Mr Scott met a delegation from the Union of Students in Ireland/National Union of Students. Student leaders claimed he refused to discuss the matter, gave them a lecture on the need for de-centralised government and showed them the door.

They refused to leave, and he had to be removed by police. The search officer of the USU/NUSS, Mr Gerard Cusnahan, had already written to point out some defects in the proposed change over.

He claimed that the 162 Derry students who currently commute to Coleraine pay a travel bill averaging £300 per year, but Belfast students travelling to Jordanstown pay more than £250 each on average and the New University of Ulster could be badly hit.

Mr Michael Murphy, chief officer of

the western education and library board has denounced the changes as a restriction on academic freedom.

In a letter to Mr Scott the board argued that students living close to their place of study might get an unnecessary increase in their grants at the expense of others whose travel costs were unavoidably high. Mr Murphy said the loss to some students in his removal area could amount to more than £300 per year.

The minister has not yet replied but in an earlier letter his private secretary said that Mr Scott's main concern was not the attractiveness or otherwise of the proposed changes "but rather whether the adverse effects of their introduction into Northern Ireland would be so great as to warrant his abandoning the department's long established policy to maintain parity of student awards for Northern Ireland students with their counterparts in England and Wales."

The only information so far officially released on the matter was in March in response to a parliamentary question from Mr John Hume, MP for Foyle. These figures relate to the 1981/82 academic year and appear not to support the proposed changes.

They showed that students living away from home that year claimed much more on average than their colleagues living at home - £119 compared with £83. The Government's system by contrast is based on the premise that students living at home incur greater travel costs: they will get £160 per year while students living away will get £100.

Book spending falls by a third

Spending on books by university and polytechnic libraries fell by a third in 1983, according to a survey published by the National Book Association.

Book spending kept up with inflation at only 1 per cent of the 53 libraries surveyed. Total expenditure on books and periodicals declined by 19 per cent in the universities and 29 per cent in polytechnics.

Library Book Spending in Universities and Polytechnics, free from The Publishers' Association, 19 Bedford Square, London WC1.

PARTY LINE

Structuralism and Friday the 13th

"plines", she asked, "supposed to be accessible to the commonest of common sense?" Why? Because if it is not accessible it is not English. English, our language, is the most basic tool of communication we have. If it is not possible for those who spend their life studying the subject to communicate their ideas beyond their own closed circle then I think it reasonable at least to question the value of what they are doing.

Catherine Belsey's other, and equally revealing question was "whether, if I wanted to find out about relativity theory I would I question a couple of students and then read a book review in *The Observer*, and then conclude, since I couldn't understand it, that it was nothing but 'academic obfuscation'?" The answer - to the last point of the question - is no. At the very least, if

I asked someone who knew, I would be told that, by the theory of relativity $e = mc^2$, that c was energy, it was mass $\times$ the speed of light. I would not expect to understand how those relationships had been arrived at, but I would expect - and would be told - the significance of the theory. It was the failure of any of the practitioners I questioned to explain the significance of structuralism which led me to think of it partly as an exercise in mystification.

In my April 13 piece, I offered a free copy of the Oxford English Dictionary (Concise) to anyone who could explain structuralism to me. I had many more replies than I expected - three, (equal to the number of letters I received about the hanging debate). One enclosed an ace, and simply asked me, in rather desperate tones, to let him

have copies of any explanation I did receive (does he have finals to sit, or to mark, I wonder?). Another was a copy of a review by Harry Judge of a new book on *Structuralism and Education* by Rex Gibson. I did understand the review, and might even understand the book (now ordered by the House of Commons Library - some of my colleagues' minds must be improving too).

The other was from a real live student (though not of English), who told me irreverently that the value of the structuralist approach "for the dry as dust scholar lies in ignoring all the interesting bits". He no doubt will be dismissed, too, as having no more than the commonest of common sense; but I take comfort from Harry Judge who, in praising Rex Gibson's book, said that "there was no self-conscious attempt

It was Friday the 13th after all. I've been agonizing ever since about whether it was really worth it - throwing caution to the wind to replace my usual political badinage with a few homespun and rather heretical thoughts about structuralism (*THES*, April 13). It seems to have done no end of damage to my (already unimpaired) left wing credentials; and my good (and unquestionably left wing) friend who prompted the piece with some wholly heretical thoughts about overruled universities claims to have had his cover blown and his future examination grades put gravely in doubt.

Catherine Belsey, of the department of English at University College, Cardiff, gave me a thorough beating in the columns of *The THES* (Letters, April 27) with an offer of a reading list "which could at least help him find a more useful target for attack than higher education". (I was actually urging higher education to a better defence, but then misinterpretation is a continuing fate of mortal politicians.)

But it was worth it, not least for a gem, a true treasure of a sentence in Catherine Belsey's letter itself. "Why is English alone among disci-

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Impasse provides a diversion

We face an unprecedented log jam in public sector pay settlements. Like us, teachers in schools and in further education, the civil service, and workers in telecommunications are all fighting a bit of a settlement, waiting to see which will be the first domino.

The money stakes are not high: most employers are stuck with little flexibility above the Government's cash limit. But who wants to be accused of selling the pass and being the first to settle for a derisory 4 per cent plus? It is all too easy for disgruntled members, very well aware of the slump in their standard of living, to blame not the Government but negotiators and unions for the continued erosion of their pay levels.

For university teachers the current impasse on the "4 per cent solution" could well end up as a diversion from the main problem. Like school teachers they have fallen so far behind in the comparability stakes that only a conscious act of political will can affect their relative position. Unlike school teachers they enjoy little public visibility or sympathy. Sir Keith is not likely to be brow beaten by the *Daily Mail* into playing fair by academics.

Why has this erosion occurred? One school of thought suggests the machinery is at fault: committee "A" with its quaint and arcane traditions, and the boots and spurs of Department of Education and Science dominated committee "B", have outlived their usefulness goes the argument. This is further diversionary talk. The application of a rigid cash limit in the university sector, which has no possibility of alternative sources of finance of the scale required adequately to supplement the limit, will defeat any machinery.

For university staff the facts are stark. Since 1979 when the Government and the Association of University Teachers last reached agreement on pay levels, salaries have fallen behind by a staggering 22 per cent in purchasing power. Settlements for comparable groups show the deterioration in real terms suffered by university academics: civil servants have received a 41 per cent increase, further education teachers got 37 per cent, clinical academics have been awarded 48 per cent as opposed to a mere 21 per cent for non-clinical academics over the last four years.

Whatever happens in this year's pay round vice chancellors must be prepared to put up a much more determined fight with this Government if universities want to stay competitive and not only recruit but also retain the best staff. The Government must be made to recognize that any short-term gains in the public expenditure stakes achieved by cash limits will be far outweighed by the damage to economic recovery if an efficient and skilled workforce is not there to grasp the challenge.

The universities are the linch-pin in this equation. The Institute of Manpower Studies has already warned that there will not be enough well-trained graduates to meet the new needs of an expanding economy. Again and again industrialists have emphasized that they want high quality graduates irrespective of the subject they have studied.

The Government cannot afford to ignore these warnings. A disillusioned and underpaid university profession could mean Britain reaps the whirlwind not the harvest.

Diana Warwick

The author is general secretary of the Association of University Teachers.

Report reveals exam flaw

by Patricia Santinelli

Selection procedures for entry to higher education will be unaffected by the development of a broader sixth form curriculum, if the current usage of A levels in higher education continues, a report undertaken under the aegis of the now defunct Schools Council, published yesterday says.

"Much of the use made of A level results in higher education particularly in connection with the points system, was inconsistent with traditional concern for depth rather than breadth in the preparation of candidates. If examination results are to be used in this way a more broadly based sixth form curriculum might barely affect selection," the report says.

Selection conducted along current lines would not guarantee a place for candidates outstanding in their fields of interest unless they also excelled in

other disciplines, it adds.

The report, *Selection Post-16: The role of examination results* by Brian Cooper in London Institute of Education, published by Methuen, is the outcome of a two year study of the uses made of examination results by selectors for the full range of post-16 institutions and many sectors of employment.

The report's publication is timely since it follows a Government consultative document seeking the views of higher education institutions and other interested bodies on the introduction of AS level examinations, basically designed to broaden the sixth form curriculum.

The author argues that his study revealed a considerable level of misunderstanding about examinations, even in the education service and that blunt selection methods mask and

waste talent. He says it would be better for selectors to gather all the evidence they can, including exam results, when they pick recruits but that this should be regarded as provisional and incomplete.

The report points out that the tendency for selectors to pitch their qualification demands higher and higher when competition for places increases, can actually eliminate the candidates best suited to contribute to and benefit from the courses or jobs in question.

It shows that although admission tutors usually confirmed published course requirements, the returns showed a tendency to increase such requirements. For example, English language was often added to a published requirement for mathematics and A level requirements grades raised to the new level of B.

Clamour for seats on NAB board

by Karen Gold

and David Jobbins

Submissions on the future of the National Advisory Board are producing renewed rivalry for seats on its board.

The Association of Polytechnic Teachers this week suggested that it should take one of the two seats presently occupied by the National Association of Teachers in Further and Higher Education, giving it representation for the first time. And the National and Local Government Officers' Association has also put in a bid for a seat.

At the same time, the Confederation of British Industry has appealed to Sir Keith Joseph, Secretary of State for Education and Science, to add two practising industrialists to complement its sole representative on the board. It believes that the views of one of the main customers of the system should be heard on the board, where policy is formulated.

In its submission, the APT says: "The board cannot claim to take account of the interests, expertise and information from the academics in public sector higher education when a professional association representing more than 3,000 lecturers is excluded, and only in that sector is excluded."

"If the board is concerned to collect the best advice from the system, it would clearly be more effective to have one Nafte representative and one APT representative."

The APT claims that Nafte's two

representatives, working closely with the TUC nominee, have consistently worked for the dispersal of higher education and cuts in funding of major institutions.

In its own submission, Nafte recommends an expansion of the NAB's remit to include advising on the resources necessary for higher education as well as how they should be spent.

The NAB's credibility for the future depends not on its ability to put provision, but to represent the interests of the public sector, and to make representations to Government about both the total amount of higher education resources and their distribution between the university and public sectors, Nafte says.

It adds that the NAB committee's terms of reference should be modified to include advising the secretary of public sector higher education. But the balance of power between the board and committee, and their membership, should not be changed.

● The APT's accounts for the year ended December 1983 show a 5 per cent increase in membership, from 2,337 to 2,457. The organization, which is not affiliated to the TUC, says that many of the new recruits are former non-union members who have sought protection in the face of continued staffing cuts.

The rise also covers the period in which the APT changed its rules to admit lecturers advanced further education outside the polytechnics.



Prize winning tiger feat

Miss Justina Leitao, a Bristol Polytechnic undergraduate, holds the design which made her the first student for 10 years to win a prize in *Print* magazine's international cover design competition. She won third prize with her entry, which was produced by projecting a colour slide of a tiger onto a human face.

A patent danger to research

by Jon Turney
Science Correspondent

Over-zealous patenting can hamper research, says the Committee of Vice-Chancellors and Principals in a report, *A Government Green Paper on intellectual property*.

The vice chancellors' preliminary response to the Green Paper about the present Government approach to these issues is superficial, and doubt on the value of detailed legislation when technology is changing fast.

In the Green Paper published in December, Dr Robin Nicholson, scientific adviser in the Cabinet Office, criticized lack of awareness of the

communities have long recognized and capitalized on their interdependence. In the past 30 years corporate financial support of the universities of higher education has grown from roughly \$40m to more than \$1 billion, average annual increase of about 11 per cent. In addition corporations today provide another \$50m for education in the form of scholarships and fellowships, support of research institutions, and grants to educational associations and organizations of the periphery of education," states the report.

"Although corporate money accounts for only 1.3 per cent of college and university budgets, it is the equivalent income of perhaps \$14 billion of endowment, and it often provides the margin between mediocrity and excellence."

"For their part, American colleges and universities have long produced some of the world's highest skilled workers and pioneering research that is the envy of the world."

But, the report states: "Today there is a legitimate concern about the future health of both sectors. It suggests improvements in the development of technological innovations and human resources."

It says that in the past decade, real expenditure per student has declined by 15 per cent and the decline is likely to continue through the 1990s.

"Further budgetary retrenchment is expected in the next 16 years, meaning that colleges and universities will be required to make additional cuts - a development that poses a severe threat to the maintenance of educational quality at levels consonant with national and corporate interests."

It says that on the academic side, new ideas should be evaluated and brought out with individual companies

Physics review

The review group looking at British spending on particle physics will consider the benefits in other areas of science if the physics cash was spent elsewhere, as well as the educational and industrial value of high-energy physics research.

The group has issued an open invitation to submit evidence, listing topics it sees as most important, including the standing of British physics, and a list of priorities for physics work done at the European Centre for Nuclear Research (CERN) in Geneva.

Industry bonds strengthened

from E. Patrick McQuaid

A new report from the Business Higher Education Forum, an 80-member affiliate of the American Council on Education, says international industrial competition could financially weaken American academe. It urges stronger bonds between the "two long-standing partners".

The forum comprises corporate and academic chief executive officers and is chaired by the Rev Theodore Hesburgh, president of the University of Notre Dame. *Corporate and Campus Cooperation: an Action Agenda* follows up a study submitted to the White House last year.

"The corporate and higher education communities have long recognized and capitalized on their interdependence. In the past 30 years corporate financial support of the universities of higher education has grown from roughly \$40m to more than \$1 billion, average annual increase of about 11 per cent. In addition corporations today provide another \$50m for education in the form of scholarships and fellowships, support of research institutions, and grants to educational associations and organizations of the periphery of education," states the report.

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It says that on the academic side, new ideas should be evaluated and brought out with individual companies

"in all areas that would enhance the totality of academic-business relationships".

The need for expanded corporate aid to higher education today is more critical than at any time since the war.

"Similarly, in light of the increasing competitive gains by foreign nations, industry's requirements for timely, pace-setting research and skilled graduates have never been greater."

Links between the business and academic communities are in no way limited to financial support... and contract research. Opportunities for additional corporate-campus relationships exist, ranging from the sharing of personnel and facilities to the joint training of workers.

The new forum report, states that the US "is suffering from massive trade deficits in the 'smokestack' industries, while in the high-technology industries... America's share of the global market has declined from 25 per cent to 20 per cent in the past decade alone."

"Restoring America's industrial strength will require a comprehensive national effort designed to revitalize the three key components of competitiveness:

- productive capital investment,
- pace-setting technological innovation,
- a well-educated, highly skilled workforce."

The report says that spending more than any other nation on research and development will have little impact on economic growth unless American industry can successfully commercialize the results. Further a massive investment in higher education and equipment will accomplish little unless a corresponding investment is made to develop a newly skilled and competitive labour pool, "clearly recognizing business dependence on the academic community in the development of technology and human resources."

The report states that the problems facing academe "are dimly perceived and poorly understood" outside the higher education community. For example, from 1972/73 to 1982/83, "overall enrolment in the institutions of higher education rose from about 9.3 million to 12.4 million, a 10-year gain of roughly 33 per cent."

"At the same time, inflation... caused a general rise of more than 127 per cent. To achieve a constant level of college and university expenditures per student in real terms would have meant an increase of about 202 per cent in financial requirements."

European body faces cash crisis

A West European student organization set up to provide an alternative to the East-West confrontations of the European Meeting is facing a financial crisis.

The West European Student Information Bureau has been funded for two years by the Swedish government, but it is not yet clear if this support will continue next year.

Despite increased affiliation fees from the 14 national student organizations under its umbrella, withdrawal of the Swedish government's funding for 1985, and a 216,000 deficit, the bureau is in a financial crisis.

A bureau meeting in London late last month discussed the crisis, and the bureau's leaders are now looking for ways to raise funds. The bureau's main source of income is from the Swedish government, which has provided about \$22,000.

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overseas news

Build up, council tells German universities

from Barbara von Ow

MUNICH German universities should spend DM8.1 billion on buildings and equipment in the years 1985 to 1988, according to recommendations by the Academic Council. The council, which is made up by representatives from the universities as well as the Bonn and Länder governments, also recommended to give an immediate go ahead to several building projects worth a total of DM1.6 billion.

Recommendations by the Academic Council are usually accepted by the Bonn and Länder governments which each bear 50 per cent of the cost of university construction. In recent years, the focus of investment had shifted from the expansion to the maintenance and improvement of existing facilities, the chairman of the academic council, Engel, said.

New emphasis was being placed on fast expanding research areas such as informatics, microelectronics, genetic technology and biology. However, expansion projects had to take into account that there was still a lack of qualified scientific staff in almost all these fields, he underlined.

The Academic Council was "con-

cerned" that for several years about half the university investments had gone solely into medical facilities. Nevertheless it supported plans to renovate some older university hospitals, despite the considerable costs involved.

A number of Länder, the council noted, had spent notably less money on the replacement of scientific equipment than was necessary to maintain scientific standards. However, it welcomed that some had earmarked larger sums for such projects in this year's budget.

German medical students will be required to do two years of practical training at the end of their degree course before they become fully qualified doctors. A draft law to amend the federal medical law was submitted by health minister Heiner Geissler earlier this month and the new law, which would become effective from 1987, is expected to be passed by the Bundestag this week.

The amendment aims at improving the practical qualification of would-be doctors. After finishing their six year degree course, graduates will have to do two years of on the job training before they receive their full qualification (approbation).



Professor accused of plagiarism

An assistant professor of economics at Miami University who had studied and written extensively on the stability of prices in general equilibrium saw an article with that title in the August 1982 number of the *Quarterly Journal of Economics*. Mr. Larry Chennault said: "This is interesting. I've done research in this area. I'd better read this article."

Now, after a year-long investigation, the editor and publishers at Harvard University have charged that the author of the article, Professor Conway Lackman of Rutgers University, submitted Mr. Chennault's unpublished 1979 graduate school paper after typing in his own name and removing the Miami letterhead from the manuscript. The accusations were made in a rare, "notice to our readers" in the latest edition.

Though he denies any wrongdoing, Mr. Lackman has stepped down from his post at Rutgers and from his visiting professorship at Rollins College in Florida, pending investigations.

Rutgers had reportedly told Mr. Lackman he would face dismissal proceedings if he did not resign. He faced similar pressure at Rollins.

Mr. Lackman presented a 25-page letter to officials at both universities, claiming his innocence. An attorney for Mr. Lackman said that materials presented to officials at all three colleges included original, hand-written mathematical computations and correspondence on the subject with colleagues. He further stated that the Harvard investigation was "unfair and persecutory, rather than impartial".

The counsel for Harvard has called the inquiry careful and thoughtful and has noted that with the exception of authorship and a footnote indicating institutional affiliation, Mr. Lackman's submission was verbatim Mr. Chennault's earlier work.

Mr. Daniel Steiner, Harvard University's vice president and general counsel, said the notice in the *Quarterly Journal* this month accurately reported facts developed after a thorough investigation.

Elsewhere, a historian at Florida Junior College has been suspended by trustees pending the outcome of a plagiarism inquiry. Professor Joyce Holzenford had submitted a paper to the board of trustees describing her experiences in Tanzania as part of a campaign to aid the school's international education programme. Soon after another woman claimed she had written the paper about her visit to Sierra Leone, and charged that the professor had "briefly changed placenames".

Prejudices unveiled

Ms Binahat Kuru, a Turkish lecturer in chemical engineering, is reported by Iranian fundamentalist sources to have filed a court petition against pressure on Turkish women students to unveil.

The traditional Islamic face-veil was banned in Turkey during the westernizing reforms of Kemal Ataturk in the 1920s. Though discouraged by the present regime, it has been making a comeback as a result of Islamic revivalist trends in the Middle East.

Ms Kuru, who has herself been questioned by the police and fined on several occasions for wearing a veil, claims the forcible unveiling of women students will cause them to abandon their higher education and hence harm the interests of Turkey by creating a shortage of intellectual workers. The complaint was filed on May 26 and the court decision is expected some time after June 8.

Segregation 'still lingers'

Educators, attorneys, legislators and representatives from civil rights organizations have met at various cities across the United States to reflect upon the thirtieth anniversary of the Supreme Court decision to outlaw segregation in American schools.

Many agreed that despite measurable progress in the elementary and secondary schools, there remained numerous barriers ahead at public colleges and universities.

In current disputes the government has had to threaten to suspend all federal assistance to several colleges, including entire state higher education systems in the south, in order to enforce desegregation laws.

In April the chancellor for the Georgia University system agreed to cooperate with the education department's office for civil rights to settle long standing argument over exams required of all graduate students.

The government contended that the state's three predominantly black institutions, where failure rates were

disproportionately high. The chancellor had earlier said that there was no room for negotiation on the matter.

Some legal scholars believe that the 1978 "reverse discrimination" case, in which a white applicant successfully challenged the racial quota scheme at the University of California Davis Medical School, as a major stumbling block.

The number of blacks attending professional schools has levelled off since that case, according to figures compiled by the various professional associations.

"Historically white institutions are still overwhelmingly white and historically black institutions remain overwhelmingly black," Mr. David Tate, director of the office for civil rights in the department of health and human services during the Carter administration, told a gathering at the university of Colorado law school. He said that most southern colleges remained segregated despite laws, efforts and good intentions.

Union row greets new staff group

A row has broken out over the New Zealand government's recognition of the recently formed Association of University Staff as the non-academic negotiating body on salaries and conditions of service.

The 2,070 staff members concerned are mostly clerical workers and welfare services staff. They were brought under the pay-fixing machinery of the government state services department in March last year and in December a

national ballot was held to enable staff to vote on their preferred union.

In a straight choice between the Clerical Workers' Union which had previously represented typing and clerical staff, and a proposed new federation of non-academic staff, the latter won by 934 to 650 votes.

At their own request and in accordance with national agreements between private and public sector unions, the Public Service Association, the largest civil service union, was not



Peter Levi: pondering upon his role

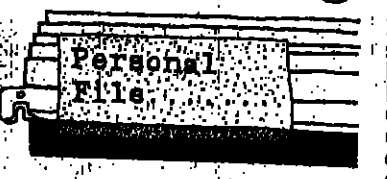
He was a small boy scribbling on a rainy afternoon...

by Paul Flather

Mr Peter Levi will spend the next few months pondering just how he is going to talk to the students of Oxford University in his new role as Professor of Poetry. Auden used to spend his mornings in the same café talking to anyone who wanted to. As a poet, Mr Levi is not what it was.

However, he is pleased that all the brouhaha over the election to the poetry chair is now over. He believes it attracts a disproportionate amount of media attention, particularly as less than 1,000 votes were cast for all candidates; less than a typical local council election. "Journalists clearly like any election race," he says. At the end of the two-day weekend election, open to all Oxford MAS voting in person, Mr Levi had 427 votes, Mr James Fenton, the journalist and poet, 279 votes, Professor Frank Prince, 99 votes, Mr Gavin Ewart, a Cambridge man and literary expert, 52 votes, and Mr Duncan McGann, a pub poet, 25.

Mr Levi, who is 53, a full-time writer, has been a poet since 1950. He is a



and critic, classical scholar, archaeologist, and former Jesuit priest, began writing very early, producing his first poem one rainy afternoon and simply never stopping. He recalls filling a mathematics exercise book with a Shakespearean style verse-drama around the age of 10 or 11. He was never taught to write, but he was taught the rules of poetry, metre and rhyme, how to spell, and how to understand poetry. He is critical of modern testing methods which see poetry as a kind of "do-it-yourself form learning the tools and discipline of writing. There is no reason, he says, why poetry should have any less logic, reason, or cogency than prose.

He comes from mixed Jewish and

Roman Catholic ancestry, and has spent much of his life as a Jesuit, leaving the priesthood in 1977, when he married the widow of critic Cyril Connolly. He taught at Campion Hall, Oxford, has regularly gone on digs in Greece, and became a classics tutor at Christ Church College for three years.

His task is to give three lectures a year and to "talk" to the students. He is considering perhaps formal discussions on his home ground in college, plus other more informal exchanges. He also has a number of new works already set for publication. These include a Penguin about Boswell and Dr Johnson's travels around the Scottish Highlands, and *Marko The Prince*, translations of Serbian heroic poetry, dating back to the fifteenth century. His works sell about 2,000 copies each, good going for poetry. His last, *The Echoing Green*, a collection of laudations and elegies for three dead friends, sold well despite just one review.

He believes strongly there is such a thing as a poet. "I do believe I am a poet," he writes. "I do not know if I am a poet, but I believe I am."

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Israeli university tackles \$10m deficit

from Benny Morris

JERUSALEM

Israel's largest institution of higher education, Tel-Aviv University, has run up a deficit of \$10m and its president, Professor Moshe Many, intends to go abroad on a fund-raising tour to raise \$3m.

Professor Many outlined his plans at a meeting of the university's board of governors in Tel-Aviv last week. He said that the deficit was caused by the delays in the government's transfer of funds to the university and by debt servicing on high interest loans.

University administrators fear that the deficit will reach \$15m by the end of this year. Professor Many said that whereas the state provided about 84 per cent of the universities' budget in 1973, ten years later it provided only 61 per cent. At the same time, the universities accounted in 1973 for 7.9 per cent of the national budget while by 1983 the proportion had declined to 4.4 per cent. Tel-Aviv University's budget for 1984 is about \$100m.

Professor Many said that he has already raised about \$500,000 of the \$3m targeted in the emergency fund-raising campaign. But he added that in order to repay its debts, the university would have to cut its budget by 14 per cent this year, after cutting 8 per cent in 1983.

Tel-Aviv University's budget problems are a microcosm of the general economic state of higher education in Israel today. Professor Haim Harari, chairman of the Council for Higher Education's budget and planning committee wrote in the council's newly published annual report: "The Israeli higher education system in 1983 moved from a state of slow deterioration to a state of deep and acute crisis."

Fund aids Soviet migrants

Tel Aviv University is to receive an endowment fund of \$1m, to provide university posts for scholars and scientists emigrating from the Soviet Union, Professor Yoram Dinstein, the rector of the university, announced last week.

The timing was ironic - Jewish emigration from the Soviet Union is at an all-time low, barely 50 a month, compared to several thousand at the height of *deportation*. And recent Israeli cuts in higher education have been so severe that at the end of last year the president and rector of Israel's seven institutions of higher learning warned the government that they might have to close down the universities.

The idea for a fund to help Soviet immigrant scholars has in fact been under discussion for several years, but a willing donor was only recently found - Mr Fabian Kolker of Baltimore, Maryland.

Appropriately Professor Dinstein made his announcement at an international seminar on collective phenomena, also supported by Mr Kolker. Dr Dinstein stressed too that posts would be created in addition to the normal university appointment structure, but only for those people who could get through the usual selection procedures. It was a matter of creating additional appointments for worthy scholars, not an act of charity.

He admitted that the scheme could create some bad feeling from young Israelis who were finding it difficult to obtain posts within the university structure, which is cutting its establishment by 5 per cent.

Under the terms of the endowment, if no Soviet scholars arrive, the fund may be diverted to financing for Israelis.

overseas news

Egypt fights cancer

by Thomas Land

Egypt has launched the first mass anti-cancer campaign in the Third World.

Staggering statistics just released by the UN's World Health Organization show that contrary to popular belief associating cancer with an industrial style of life the disease claims more cases and causes more deaths in poor countries.

Cancer of the cervix, one of the most common forms of the disease in the developing regions, is the target of the Egyptian programme. The project is centred on a four-year training scheme intended to produce 120 Egyptian and other African radiotherapists, gynaecologists, medical radiation physicists, diagnostic radiologists and cytologists.

The project, which involves the cooperation of many medical and educational institutions, is coordinated from the Cairo University Hospital which is to work closely with Africa's first radiation research institute.

The new institute is intended to speed the transfer of advanced medical, agricultural and industrial technology to the hungry belt of the globe, is nearing completion in Cairo.

One of the first tasks of the new National Centre for Radiation Research and Technology will be to support the pioneering anti-cancer programme. It will also apply radiation in the service of Egypt's developing pharmaceutical, farming and food processing industries.

A Cobalt-60 gamma irradiation facility housed at the centre has been supplied by Canada. An electron-beam accelerator has been provided by the United Nations development programme.

The institution already employs a scientific and support staff of 800. It has ten eight years to build at an initial investment of \$15m with advice from the UN's international atomic energy agency.

The multi-purpose centre will also support several other projects simultaneously, involving collaboration with many countries, industries and other research institutions. It will promote the transfer of radiation technology from the industrialized world in spheres like the sterilization of pharmaceutical products, the improvement of the quality of cotton (an important cash crop in the region) and the preservation of ancient monuments.

The centre will also conduct studies and promote collaborative technology transfer for the protection of processed food and animal feed from bacteria and the preservation of perishable foodstuffs, the modification of textile fibres and the vulcanization of rubber.



Adimba Herman Toivo Ja Toivo, one of the founders of the Namibia liberation movement SWAPO, last week visited Hull University where the student union building bears his name. Until two months ago Ja Toivo had been held on Robben Island, the notorious South African prison settlement for 16 years.

Three more South African universities hit by unrest

from Carolyn Dempster

JOHANNESBURG

Three more South African universities were the site of student boycotts this week in a spreading wave of campus unrest. This brings to eight the number of universities affected by sit-ins, demonstrations, boycotts or administration versus student clashes in the past month.

At the University of the Western Cape, which caters exclusively for coloured students, 3,000 of the students followed suit two days later with a lecture boycott to demand their solidarity. The measure appears to have been successful as the strike was subsequently reinstated.

The use of the boycott as a weapon particularly by black students at South African universities is becoming a common occurrence. It is also the first time that students have demonstrated their solidarity with organisations or factions not directly related to academia.

At the University of Cape Town, a full complement of black students at a campus of about 500 - joined with students at universities throughout the country in a one-day boycott of lectures in protest against "harsh Bantu" controls, gutting education and to political oppression of our people.

The continuing state of unrest at the University of Transkei (Uniba) in the homeland/Bantustan of Transkei closed this week when the university was closed until July 10.

In a statement issued by the university council, chairman Mr A. J. Sigcau expressed concern at the disruption of five of Uniba's lectures.

High fliers claim £20,000 prize

Students from the Massachusetts Institute of Technology are claiming the £20,000 Kremer prize, offered by the Royal Aeronautical Society, for the first human-powered aeroplane to fly a 1,500-metre course. Their 74 lb aluminium-mylar-styrofoam monoplane, piloted and pedalled by Frank Seeley, flew the course in two minutes and 49 seconds - inside the three-minute limit for the competition.

Birdwatching has long ceased to be a leisure activity for the leisured classes and is developing into one of Britain's most popular recreational activities.

Membership of organizations like the Royal Society for the Protection of Birds and the county nature trusts has soared as interest in natural history and conservation issues has grown in inverse proportion, it seems, to the threats posed by human activity.

Within the mass interest - the RSPB alone has more than 360,000 members - there is a growing demand for a re-orientation of the education system at all levels.

In the schools, children's interest seems to be growing faster if anything than their teachers, and the RSPB's education department is fully stretched in servicing initial and inservice courses for teachers.

And a survey carried out by the RSPB last year revealed that there were at least 560 adult education courses run by local institutes, the Workers' Education Association and university extra mural departments with bird themes.

The organization regularly supplies guest speakers, and advises tutors on the construction of courses and available teaching resources. Last year it circulated its first adult education tutors' pack containing background papers and advice on how to run a course which gets beyond the all-too-frequent "Cook's tour" approach of a ramble around a habitat with the emphasis too heavily on snatching imperfect glimpses of rapidly-disappearing small town birds.

Head of the RSPB's 13-strong education department, Mr David Elcombe, acknowledges that although bird identification is the obvious and important starting-point, it is vital to take students beyond that stage to consider questions of biology and ecology.

Properly conducted fieldwork as overcoming the reluctance of some institutes and WEAs to accept bird courses as valid scientific activity. "A proper science centre is needed without it becoming too academic and staid," Mr Elcombe says.

As well as aiding individual tutors, the RSPB has devised a correspondence course which in turn was responding to a sustained demand from potential students. Available from September, it is a one-year course based on seasonal activities, beginning with the basics of bird identification before moving on to ecological and biological questions.

The NEC does not intend to offer a diploma of any sort, but students who complete the course satisfactorily receive a certificate.

Similarly, the Open University has approached the organization to design a course for its programme of non-degree level work. Still at a very early stage, with final decisions on whether

biologists, these days, are information technologists too. The living cell is stuffed with information. And ever since the structure of DNA, the hereditary material, was solved in the early 1950s, molecular geneticists have been learning how to read the messages stored in the double helix.

First the triple genetic code, which has sequences of the four different amino acids in strings of amino acids in protein molecules, was deciphered. Then biologists moved on to unravel the punctuation, even the grammar of DNA sequences. And now the genetic engineers are writing their own stretches of code to modify genes and organisms.

This success brings a new problem - how to handle the enormous volume of information extracted from living organisms. Sequencing a complete genome, once enough to win a Nobel prize, is now a routine job, aided by a range of sophisticated machines. As the pace of biological journals filled with endless listings of DNA sequences - charged lines of ACTGCTA - rolling across the page - it was natural to look for better methods of storage.

Computers came to rescue, and there are now well-established databases which list all the DNA sequences known - set up by the European Molecular Biology Laboratory in Heidelberg and the National Institutes of Health in the US, for example.

There can be expedite important discoveries like the finding last year that a stretch of DNA implicated in the same DNA sequence as a known cancer gene. But this is not the end of the story. The DNA databases are growing so fast, doubling every six months, that new techniques are being developed to make the best use of the information which reveals

A fledgeling interest takes off

David Jobbins looks at why birdwatching has become more than just a hobby

to proceed resting with both bodies' finances, it is likely to prove the decisive factor.

With the OU in its present dire financial straits, some form of external sponsorship is a distinct possibility. Again no diploma is envisaged but the course is likely to be slightly more demanding than the NEC's, suitable for the interested and mildly experienced layperson and using the OU's multi-media approach including the possibility of television films. The RSPB's contribution will be to provide course writers, film material from its extensive library, and suggestions for practical work.

While adult education is an important area, the RSPB has firmly set its sights on young people. There about 2,000 Young Ornithologists Clubs throughout the country, with a total membership of about 100,000 and their enthusiasms are feeding through to the schools where many of them are based.

Mr Elcombe, who came to the RSPB in 1975 after seven years as a lecturer in geography at the former Phillips Fawcett Teacher Education College in Streatham, has therefore concentrated on equipping teachers to make the best possible use of birds as a teaching resource.

They fall broadly into two categories, the most significant being inservice training at teacher centres or elsewhere but with a significant input to initial or postgraduate teacher education. From some 50 or so courses in 1978, the department now has an involvement in 150. "The courses vary enormously," Mr Elcombe says. "We try to tailor them to the needs of the particular group of teachers concerned, and to the local environment."

For example he had just taken a one-day inservice course on wild birds as an educational resource at the John Taylor teachers' centre in Leeds with 37 teachers enrolled. After indoor sessions on how to improve existing life science courses and practice projects, the teachers had a first-hand view of the opportunities for study offered by one of the RSPB's 100 or so

reserves, in this case Fairbairn Ings. Fairbairn Ings is one of several reserves owned or managed by the RSPB and dedicated to educational work. Classrooms have been built and each of them has a teacher-naturalist on hand to help with school visits.

"Had we not had Fairbairn Ings, we would have involved the teachers in a number of practical activities which could be carried out in the classroom - feeding studies, dissection of owl pellets, studying adaptation for flight."

"Wherever possible we take the teachers out to a typical habitat. It may be a walk around the school grounds but it will be more likely to be a visit to a local park especially if it has a lake," Mr Elcombe says.

Another example is a four-part evening course for teachers at Milton Keynes with teachers being helped to visualize the opportunities provided by the habitats around the new town - school grounds, houses and gardens, the shopping centre, a lake and relict woodland.

Among the institutions drawing on the RSPB's services for their initial training courses are Homerton and the Froebel Institute and Southlands College, both within the Roehampton Institute in London.

Teachers' centres themselves are becoming an endangered species so the RSPB is trying to encourage schools, perhaps those with active YOC groups, to host courses either for their own staff or also for staff from other schools. This enables courses to

be run in areas either where centres have closed or in remoter places where they have never existed. The organization also publishes a vast amount of material suitable for use in the classroom, and a quarterly newsletter which is supposed to reach every school in the country. But why birds? "We suggest to teachers that wild birds can make a very valuable contribution to teaching particularly in the primary or middle school," Mr Elcombe says. "Birds are probably the most obvious form of wildlife to which people have access. They are present throughout the year, relatively large and colourful, used to the way of man - and come into school grounds."

"As a group they demonstrate adaptation to a wide range of habitat and ways of life. They are also easier to study than some of the less familiar themes in the biology syllabus. How many children have ever seen an amoeba or an axolotl?"

They also have a role in getting quite complex environmental and conservation issues over to children who in later life will be the custodians of the delicate web of life on which man ultimately depends.

Nowhere is that conflict sharper in the UK at least than between the interests of conservation and modern farming techniques. Without a greater awareness among agriculturalists of the possibilities for a middle road between high intensity farming practices and the preservation of life forms



Biologist Colin Bibby carefully examines a young Dartford Warbler, one of Britain's rarest breeding birds, as part of a research project into the reasons for their decline.

which are incompatible with them, Britain's trend to a monocultural desert will inevitably continue.

Confrontation with farming interests is, the RSPB feels not the best route and it is a key partner in the Farming and Wildlife Advisory Group which tries to reconcile the conflicts. Under FWAG, a special study group has been set up to devise ways of bringing conservation awareness into the lecture theatres of the agricultural colleges.

The group brings together conservation bodies such as the RSPB, the Royal Society for Nature Conservation, the Countryside Commission and the Nature Conservancy Council with representatives from the agricultural colleges and their examining boards.

The aim is to give conservation the same status as a prominent underlying theme throughout all agricultural studies as has been given to health and safety issues. The RSPB is involved in producing lecture notes written by practising agricultural lecturers for distribution in the colleges. A greater awareness of the issues is needed from lecturers, Mr Elcombe says. "Many are sceptical, ignorant if you like."

The RSPB's research department also has links with universities and colleges - but would welcome more. With six permanent staff and up to 40 on contracts of varying duration, its capacity is stretched by conducting its long term studies into questions such as lead poisoning in swans while providing the technical support for the conservation department's "firefighter" defence of threatened habitats.

Faced with the demands of the re-registration of sites of special scientific interest under the Wildlife and Countryside Act, the department is eager to hear from university and college departments near RSPB reserves who would be prepared to carry out botanical and zoological surveys which would otherwise almost certainly be overlooked.

The conservation department too has its direct links - regularly taking a sandwich student from Hatfield Polytechnic on placement at its Bedfordshire headquarters. The RSPB is also much in demand as an employer with applications for advertised posts running at up to 200 per job from well qualified graduates.

While the ecology content of undergraduate courses is still small, the demand will inevitably increase when the unbought youthful enthusiasm of YOCs in the schools encouraged by teachers who recognize their educational value feeds through to the higher education system.

Most work with birds is being done at postgraduate level at Oxford, Liverpool Polytechnic and elsewhere, but it is difficult to see other institutions failing to respond when met with a qualified as well as an enthusiastic demand.

gene sequence lists, but the number of proteins which have been studied in three dimensions is much smaller than the number of known DNA codings. A second advantage is that we know much more about the way the linear chains of a protein molecule are folded, twisted or pleated to make a three-dimensional structure. The programmer's task is similar to the work needed on DNA - finding patterns in protein structure - between the bald sequence of amino-acid units and the highly detailed maps derived by X-ray crystallographers.

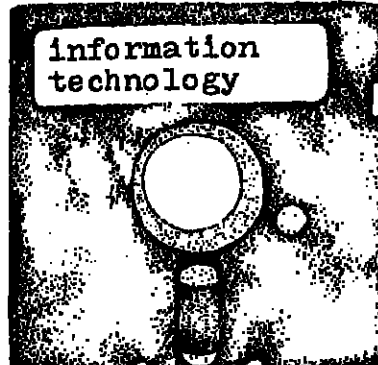
So far, Chris Rawlings has concentrated on so-called "super secondary" structures in proteins, like a characteristic pattern of chain folding common to a number of well-studied proteins known as the Greek key, for its resemblance to motifs found in Greek pottery. If patterns like this can be highlighted in new proteins, the relevant DNA sequences can then be compared as well, to help studies of evolution as well as structure and function.

One ultimate aim is to combine pattern searching in DNA databases with strategies derived from knowledge of protein structures. "At the moment those data are in different databases and in different languages, but integration of these two is going to be the name of the game," says John Fox.

And as the work develops, there is the chance that the artificial intelligence work will lead to new insights into how information is ordered in the DNA. It would be only fitting of molecular biology, which is built on metaphors from information theory and cybernetics, turned back to computer science in finding out how information is packaged and processed in the heart of the cell.

Getting the genetic message

Jon Turney reports on how biologists are using information technology



clues about how DNA is working in the cell.

The Imperial Cancer Research Fund in Lincoln's Inn in London makes heavy use of the existing database search programs, and was the first lab to pin down the oncogene. And the ICRF is also in the forefront of work on developing new ways of searching the massed ranks of DNA sequences hoarded by hundreds of diligent molecular biologists.

Dr John Fox, head of the ICRF's biomedical computing unit, explained the group's view of the problem: "The present generation of software is really just clever kinds of conventional data processing. You've got enormous numbers of characters, and you just want to look for homologies in sequence. The second generation, we believe, is that there are methods of searching these databases which take into account much more knowledge about what these sequences actually mean."

The ICRF group want to go beyond the essentially superficial comparisons of the data processing approach and look for similarities in stretches of DNA code which offer a surer indication of biological significance - a collection of features which mark where and when a gene will be turned on to direct manufacture of a protein, for example.

The work draws on artificial intelligence techniques, and concentrates the research of the leading US centre

at Stanford. Here, the Molgen project group, which did much of the early work on databases, is looking at AI systems to help biologists plan complex gene cloning experiments. The London team also believe there is scope for computer-aided planning experiments, but are concentrating on searching for the time being.

Dr Chris Rawlings is John Fox's collaborator on the sequence search project, and has spent many hours contemplating the limitations of the existing database programs. Straight sequence matching means the biologist is caught in a double bind. If the criteria of matching are fairly loose, the customer will be overwhelmed with many spurious similarities - like long stretches of one of the four base subunits of DNA. This is little more than combing the printed sequence by hand. But if the match demanded is made more rigorous to keep the output manageable, the search will miss interesting features of the DNA. There must be a method of pinning down high-level similarities before the matching is checked.

As Rawlings puts it, he wants to remove the clutter from the search process: "to make a pattern of patterns, or even a pattern of patterns of patterns." He explains: "Describing the DNA by its higher order structure, viewed by the occurrence of small patterns you can identify by traditional techniques, gives you an abstract representation of a DNA sequence." And

Estonia university counters charges of Russification

from Donald Fields

HELSINKI The question of access to institutes of higher education and the language of scholarship for non-Russian nations in Soviet Europe have been highlighted again this spring by conflicting reports from the least populous of socialist republics - Estonia.

In an interview with the Helsinki newspaper *Uusi Suomi* Mr Arnold Koop, rector of Tartu University, scene of student unrest during its three hundred and fiftieth anniversary celebrations in autumn 1982 and a place rarely visited by outsiders, maintains that his university has not lost its national role.

Indignantly countering charges of Russification, he claims that 90 per cent of the teachers and 82 per cent of the 7,600 students - about a third of the republic's enrolment in higher education - are Estonians.

Mr Koop is anxious to refute the "western" view that Estonians are suffering discrimination - and in *Uusi Suomi* he finds a compliant medium. In two long articles on Estonia this self-styled independent-conservative journal - once a sympathizer with Nazi Germany that now refines the business dividends accruing from Finland's good relations with its Soviet neighbour - indulges in a kid-gloved approach to the Soviet bloc and reverence for authority.

Mr Koop is quoted as saying: "The free world says that a national culture is vanishing from Estonia while its defenders have disappeared."

from Tartu University - this is not true. We don't need to educate Russians because teachers are drafted into Russian-language schools in Estonia from other Soviet high schools while many Russian-speaking students from northern Estonia attend universities in Leningrad and Moscow."

How much credence can be put on Mr Koop's statements is open to question. He himself is a Party Central Committee member devoid of obvious academic merit. Even to *Uusi Suomi* - which earnestly observes how Tartu has benefitted from the "multicultural role" deriving from a "conspicuous political career" - he reaffirms that there is no room for ideological compromise.

Speaking of "defects" in political education, the history faculty that have prompted "necessary measures", Mr Koop observes: "We should throw more people out of the university. We are humanists, but we want to educate them to understand their own errors and improve themselves."

Against official statistics showing a drop in the indigenous share of Estonia's population from 94 per cent to 64 per cent in the last half century, such a statement looks dubious. Furthermore Mr Koop glosses over the recent KGB crackdown on Baltic dissidents monitoring the 1983 Helsinki agreement that has kept the number of Estonian prisoners of conscience in Soviet jails at a steady 40 to 50.

He does mention one of them, Arvo Pärt, concerning whose sentence of five years in a labour camp and two years internal exile for

"anti-soviet agitation and propaganda" *Uusi Suomi* does not enlighten its readers. Pärt, a student of Russian philology, was expelled from Tartu University in 1979 for his part in promoting a *Saundist* publication, and ended up as a stoke. A stibler, fair awaits the KGB's latest Estonian victim - Enn Tarto, a former philosophy student committed to ten years behind bars plus five years internal exile, having served two previous terms.

A large number of the other Estonian dissidents, along with their colleagues in the other Baltic states of Latvia and Lithuania, have been connected with formal education and other intellectual pursuits.

Clearly, it is hard to paint a reliable picture of the situation though news trickling through to exile, mainly in Sweden, is thoroughly cross-checked. Articles in the Swedish press by Dr Väinö Uibopuu of Lund have exposed numerous practices at Tartu that were overlooked by Mr Koop and his Finnish interlocutor.

Analyzing recent discoveries smuggled out of Tartu University, he discovered that many doctors (a central European academic rank) had not obtained doctorates, especially in a philosophy faculty strongly rooted in dialectical and historical materialism and scientific atheism. The work of the social sciences institute was strongly grounded in party ideology.

In the Institute of Military Science Dr Uibopuu extrapolated 23 teachers with a rank between colonel and captain, 22 of whom had Russian names. In Finnish-Ugrian studies (extending to

Magyar, Finnish and other cultures related to Estonian) no foreign lecturers were employed, in contrast to the five Estonian lecturers working at Helsinki universities.

For strategic reasons, foreign guest teachers and students are largely confined to the capital, Tallinn, and are obliged to commute a tedious 200 kilometres (125 miles). Politicization is visible in existence within each faculty of a dozen or five to twelve members. The Vice-Chancellor of Tartu often occupied important positions posts to enhance their military qualifications. On the erosion of Estonian ways by Latvians, Dr Uibopuu notes: "Many of those in responsible positions have Russian names, or names the point to birth inside Russia and the biggest branch in the philology faculty, itself divided into three independent institutes, is Russian."

From the perspective of the Russian heartland, Estonia is one of few windows on the west. Exposed, among other things, to Finnish television on the other side of the gulf. Few are more concerned about this than the Estonian communist leader, Mr Karl Vaino told *Provi* that his counter-propaganda committee has been set up in Estonia, with the aim of stifling western influence. He lamented the vulnerability of youth to such mass culture as fashion, music and sport.

He observed that since the Soviet Union of Tartu producing chewing gum, once a symbol of western ways, and that the last time he had seen a

The most common expression at the launch of *Critical Quarterly's* 25th anniversary was surprise. Only 25 years? When in 1958 Brian Cox, then at Hull University, later professor of English at Manchester, sat down with Tony Dyson, then at Bangor, more recently at UEA, to thrash out a name for the new journal, a number of suggestions went back and forth: "Bastion", "Horizon", "Ariel", "Bridge", "Communication". It was John Dunby who eventually suggested *Critical Quarterly*. "It sounds as if it has existed for a hundred years".

F. R. Leavis's *Scrutiny* had folded in 1953. There was a need for a new journal that looked at literature seriously but unpretentiously. The editors' aims for *CQ* were perfectly straightforward: "to ensure that high standards of lucid English and a wide appreciation of great literature remained powerful elements of our common culture".

Otherwise, there have been few manifesto pieces, little tub-thumping from the editors, and very little tipping of their political hand. *CQ's*

editorials have more often than not been quietly empirical, reading notes on some new novel or book of poems - by Nalpaud, Golding, Craig Raine - rather than attitudinizing. Inevitably, perhaps, *CQ* has been damned by association with the conservative Black Papers on education. To the literary left, the journal has always seemed part of the Leavis right, soft on humanism, defending an unfashionable critical line. Brian Cox is anxious to insist that those *The Guardian* called a "rightly-knit group of Black Paper righties" don't live in each other's ideological pockets. Tony Dyson is now a Liberal Party member; both he and Brian Cox voted Labour in 1966. But then so did everybody else. And none of them seem much of Kingsley Amis.

Manchester, base for both *CQ* and *PN Review*, which Brian Cox helped launch with Michael Schmidt, has never become a mere

northern fastness and there is little sign of siege mentality from the editors of either.

The *CQ* exhibits one quality unique among academic journals: its market responsiveness. The editors have always had a careful eye for their readership. As a result that audience is far wider and more various than any comparable critical journal enjoys. Creative writers, sixth formers, school and university teachers, people with no direct academic ties have all found *CQ* an invaluable part of their literary education. "Literary" is the crucial word; however seriously the editors have taken associated issues, in politics, social affairs, religion, their brief has been literary first and last, their starting point a conviction that literature is important in itself.

That conviction launched a prestigious poetry prize and special poetry supplements, as well as

conferences for sixth formers and teachers. There was nothing about these. They were little more than the pages of *CQ* made flesh, a chance for interested people to talk about the things, literary things, that interested them.

The new celebratory double issue of *CQ* is different in one important respect. As well as the usual exceptionally high standard of verse (from Craig Raine, Thom Gunn, Ted Hughes, Roy Fuller, R. S. Thomas) and of critical prose (from stalwarts like John Bayley, Bernard Bergonzi, George Watson and Colin McCabe and Terry Eagleton), the editors have published a manifesto. The Association for Verbal Arts was announced in *The Times* last October, part of the movement to revive an understanding of English studies as, precisely, a verbal art, not merely as a vehicle for ideology.

Critical Quarterly has become an

institution without the slightest sign of ossification. Not only has it lived up to its title, it fulfils the ambition enshrined in those that were rejected: it communicates, it widens horizons, it builds bridges, it has acted as a bastion against at least one kind of critical terrorism: not the least important, it has preserved a sense of magic and of fun in literature.

Brian Morton
Critical Quarterly, vol 26, 1 & 2 and the *CQ Index 1959-83* are available from Manchester University Press, Oxford Road, M13 9PL.



Marking a surprise birthday

The very model of a modern polytechnic

Every polytechnic claims to be Poy's polytechnic. Kingston, where cartoonist Poy Simmonds has a friend's eyes and ears among the academic staff, actually is.

But whether the cartoon polytechnic merely reflects the real one, or the real Kingston has grown to resemble its cartoon alter ego, it seems a fortuitous model: neither trendy nor in the provincial doldrums, academically neither a superstar nor an embarrassment, neither dashing for student growth nor shutting up shop, with a spread of arts and science, multidisciplinary and single subject courses, full-time and part-time work. Kingston seems a typical, perhaps the only typical, polytechnic.

Kingston's strategy for the National Advisory Body's 1984/85 exercise, expressed in Freudian terminology just pleading to be caricatured, was to designate five "thrust" areas for growth: business, management and economics; design; engineering; science; and teacher training. All other courses would continue, but numbers would fall or remain static.

But the retention of existing courses at the NAB planning stage masked the fact that earlier in the quinquennium which ended this year, two of the polytechnic's schools were closed: planning in 1979, following national cuts in student support, and liberal studies, again nationally in decline, in 1982.

Apart from the two departments, what has gone in the past five years is staff. Fifty teaching and 100 non-teaching staff have left, mainly in the last nine months. For three months this year a state of general redundancy was declared; eventually there was one compulsory redundancy, following three during the planning closure.

What have come are new courses, new management, new academic directions and new equipment. In the last 18 months the director, deputy director, registrar, academic registrar, finance officer, personnel officer, head of learning resources and computer director were all new appointments.

The effect is a higher academic and industrial profile: the director, Dr Robert Smith, is a former chairman of the university professors' engineering conference and was dean of engineering at Southampton University. The computer director, appointed even more recently, has already been successfully headhunted by a large commercial firm.

All five of the newly established courses at Kingston point in a similar direction: MSc in information systems design and in information technology; BSc in information systems design; Masters in Business Administration; and an MEng in electronic systems engineering to begin this September.

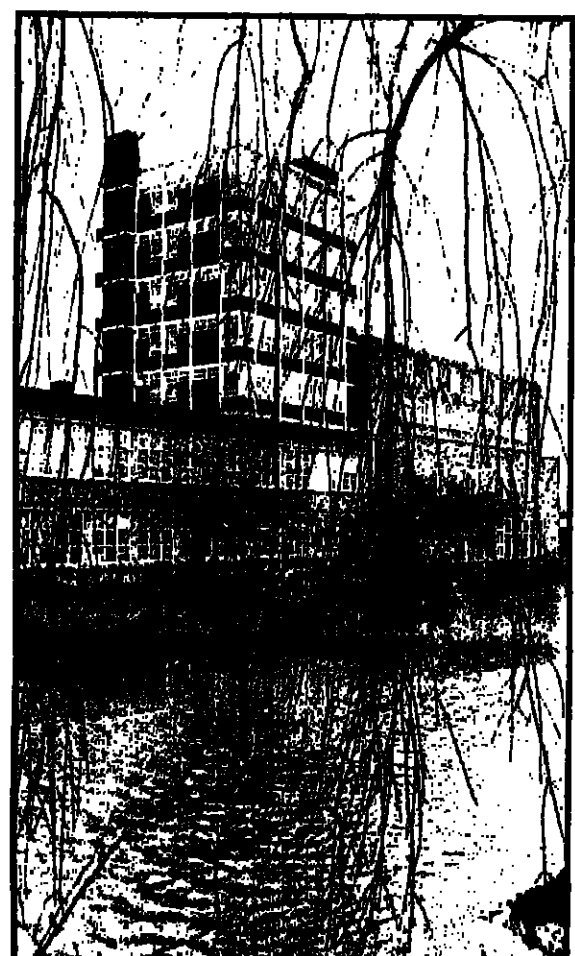
There are plans to run the MBA part-time as well as full-time, continuing a move during the last five years to the kind of vocational part-time provision favoured in the 1980s.

The polytechnic is also making a virtue of financial and fashionable expediency: starting new options - a new history of ideas option in BA modern arts, drawing teachers and

Quinquennial reviews are artificial crossroads, when public sector institutions stop and look around. In the first of three polytechnic visits in the wake of the Council for National Academic Awards, Karen Gold talks to director Dr Robert Smith about the signposts at Kingston.



Kingston director Dr Robert Smith and a riverside view of the polytechnic



teaching from philosophy, engineering, social and physical science - and finding new roles for old academic glamour.

Social science in particular, the base of Kingston's earlier expansion, whose "BA social science" became "BA applied social science" during the quinquennium, is having to find a new, more integrated role.

Dr Smith explains: "In the sixties and early seventies social science grew up as an independent discipline. There was a lot of information gathering about society in all sorts of ways. The swing to vocationalism has meant saying to social scientists, 'Use the skills which you have developed, to help engineers be better engineers, and business studies people be better business studies'."

In the new MEng due to start this September, the social science and business faculty will provide 20 per cent of the teaching, with Kingston's MEng very much the management stream of the new degrees rather than the "super-tech" MEngs elsewhere.

That was a decision across academic boundaries in the polytechnic, according to Dr Smith: "I nudged it a bit, but it was nice to see the engineering staff who are pretty conservative asking for it as well. It's showing the social scientists they are needed, but in a different way from the seventies."

Last time CNA came to Kingston for a quinquennial review, the visitors told the polytechnic its computing was worthy of the dark ages and something had to be done about it. Five years on, with more than £1.5m spent on computing and requests in the local education authority for more, more than 90 per cent of Kingston's students regularly use computers as part of their course.

Not only that: they use them outside their courses as well. Kingston students' union was the first in the country to encourage its accounting. Students and staff are encouraged to leave messages for each other, send letters, write course notes and assignments and arrange meetings, to be read off one of the 450 terminals in the institution. Kingston may yet be the first paperless polytechnic.

They appear in subjects far beyond the traditional science and engineering users. Law, language, architecture and design students all have elements in their courses not just learning computing but using programmes - for new languages or a legal data base - as a teaching aid. Economics students use them for economic modelling; business students who use computers for project work then have their assignments marked and returned on the computer.

But if the CNAA visitors can feel Kingston has kept its word to them - the 1979 visit asked for two main developments: computing and a new library, which has been built - the polytechnic feels the council has fallen down on its side of the bargain.

With its better, than average, graduate employment record and solid academic provision, Kingston seemed ideal in 1979 as one of the CNAA's two "model" partners in validation. (The other, whose experiment has now been declared both successful and permanent, was Newcastle polytechnic.)

"The Kingston scheme was much less formal than Newcastle's side-by-side council and polytechnic one. It was for the bulk of validation to be carried out within Kingston, with CNAA boards and committees kept fully informed in

order to carry out final checks at the end.

That was the theory. In practice, the polytechnic's submission to this year's visiting party said that the scheme had disappointed both sides. CNAA officers and top committees had shared information freely with the polytechnic, but council subcommittees - which deal with the nuts and bolts of course validation - had been less prepared, and sometimes refused, to take the poly's word for what it had done. The arrangement by this year had virtually fallen into disuse.

Following the latest visit, the submission says, the two sides should start again with a more formal arrangement, "such that (CNAA) subject boards may share confidence in our internal validation and move quickly to the position in which indefinite approvals and substantial delegation of authority are accepted throughout CNAA as the norm for courses at Kingston".

That new arrangement, the submission adds, would have to be the most cost-effective possible. For in the last five years, Kingston has also had acute financial problems. Its budgets have fallen about £1m in real terms each year, with student numbers rising by more than 1,000. Its total revenue is down by 15 to 20 per cent.

The unit of resource per student has fallen by 30 per cent; staff/student ratios have risen from 8.1:1 to 11.7:1, and are forecast to be 12:1 from next year. With those figures, it is easy to understand some CNAA reluctance in loosening the reins.

Financially the last five years, according to Dr Smith, were "a very bloody time". Research assistants were cut from 30 to 20; a moratorium was imposed on all staff attendance at

conferences; book purchase per student was cut from 1.7 per student per year in 1979 to 0.4 per student per year now.

All of this was partly due to national restrictions on higher education spending. But it was also due to Kingston's local position as a large cuckoo in a wren's nest, the wren being the Royal Borough of Kingston upon Thames, the second smallest local education authority in the country.

The borough wanted to cut its topping up to the polytechnic to zero; it also wanted - understandably well - 10 per cent of the polytechnic's annual turnover equalling a penny on the rate - absolute accuracy in polytechnic budgeting. In the current academic year it nearly didn't get it: a possible 1 per cent overspend by the polytechnic provoked the redundancies and restrictions described earlier.

Despite generous support from the borough for capital spending, the difficulties over revenue spending led to a squabbling between the poly and the local authority about financial management.

The borough set up a further education working party several years ago, which reports to Kingston education committee. One of its recent activities was to commission a report by the management consultants Coopers and Lybrand on the relationship, financial and otherwise, between the borough and the polytechnic.

The Coopers and Lybrand report to the dismay of some within the borough, recommended a reduction in borough charges to and supervision of the polytechnic. The borough should replace detailed scrutiny of such things as maintenance and staff recruitment, with performance review in areas such as financial management and academic achievements.

The long-term effects of the financial problems on the polytechnic are more difficult to assess than the immediate trauma of redundancies and information freely with the polytechnic, but council subcommittees - which deal with the nuts and bolts of course validation - had been less prepared, and sometimes refused, to take the poly's word for what it had done. The arrangement by this year had virtually fallen into disuse.

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Is there a doctor in the House?

Byron Criddle marks the first anniversary of this Parliament with a look at the number of academics it includes

To pose the question "Is there a doctor in the House?", is to invite the response "There are 24 but only five are psychiatrists". Excluding the four general practitioners, to whom honourable members might turn at the onset of cardiac arrest, counting the doctors is one way to begin identifying the academics, the former university and polytechnic lecturers who were elected to the House of Commons in 1983.

It is, of course, only a start, for a number of the "doctors" are not academics and a number of the academics are not "doctors". In all there are 32 academics in the present House: 11 Conservatives (including for these purposes four fellows of All Souls), 19 Labour, one Liberal, and Mr Enoch Powell who was briefly a youthful professor of Greek 45 years ago in Sydney.

The number of academics in the House has hovered around 30 for some 20 years, increasing only after elections in which Labour gains seats, as in October 1974 when out of 45 lecturers elected 40 were Labour. Academics traditionally loom large in the ranks of Labour candidates, 98 in 1983, as against a mere 13 Conservatives.

But in 1983 Labour was rivalled as the pedagogues' party by the Liberal-SDP Alliance, 96 of whose candidates were lecturers, though only one (the Liberal Alan Beith) was elected. Since the 1980 the trend has been upward, paralleling the growth of higher education, but it is a trend unreflected in the Conservative Party where as few academic candidates are selected now as ever were.

Academics who do other things, like going into politics, are generally regarded with scepticism by their colleagues, who assume that political life is incompatible with the standards of truth and intellectual rigour associated with academic life. To the don the academic MP has demonstrated by dropping out either a lack of serious purpose as a scholar or confirmed that he was doing poorly enough in his career to get out before it was too late.

Certainly few of the academics in the present House have academic laurels to their name, few books for example, but if one is to embark on a political career the choice has to be made early. The appeal of politics to certain academics is best understood if the academic is seen less as an intellectual purveyor of ideas, than as a specialist in some field of activity on which modern governments have call.

The majority of the present clutch of academic MPs are drawn from the ranks of social science: politics (nine), economics (five), industrial relations (two), geography (two), and social administration (one).

While, in addition to the erstwhile classicist Enoch Powell, there is a professional philosopher (Dr Oonagh McDonald) in the House and a holder of a doctorate, though never a lecturer, on the poetry of William Wordsworth (Chris Smith), these are exceptional cases. The academic MP is not a philosopher, but rather the redbrick or ivory tower academic who graduates from senior common room to parliament in the late 1960s or early 1970s when Labour was staking its claim as the "natural party of government".

Do academics make good politicians? Hugh Gaiskell's biographer, Philip Williams, considered how far his subject, a notable example of the academic in politics, could be considered a failure. On one reading, Gaiskell, while succeeding in winning the leadership of his party, failed both as a minister and as a politician. His deficiencies supposedly lay in a passion for consistency, a reluctance to change his mind, a preparedness to change tack only if convinced by arguments based on principle not expediency.



Among the current academics: Oonagh McDonald, Enoch Powell, Alan Beith and Jeremy Bray

poedicy, a refusal to make instant judgments without adequate information, and a reliance on rational rather than emotional appeals.

He was a man who spoke from the mind, not the heart; a teacher rather than an orator; and had imperfect political antennae, failing, for example, to foresee the patriotic response to the landings at Port Said in 1956. Did Gaiskell's "failings" reflect the inherent problems of the academic in politics, where, to rise to the front bench one needs to be able to take responsibility for kind decisions; enjoy a fight; be thick-skinned; have a sense of proportion; a skill in judging men; an ability to inspire confidence and loyalty; and a political sensitivity.

Such attributes are not, on the whole, readily associated with the academic life. Academics are essentially solitary beings unused to working closely with others, and left alone, by and large, to regulate their own work; few are placed in positions of decision-making responsibility; the lack of serious rough and tumble in most university politics leaves the academic's skin as thick or as thin as it was when they started; nor do they need to be able to inspire confidence or loyalty, given their solitary leadership of a captive audience.

A commitment to rationalism may render the academic in politics either an inflexible ideologue or an open minded pragmatist of the sort that makes for unreliability in a world where partisan loyalty is at a premium.



Doyens of dons: Gaiskell and Crossman

The academic politician Richard Crossman, doyen of the no fewer than six dons who graced Harold Wilson's 1964 cabinet (one which in Lord Beloff's view would have made a splendid senior common room, but which is as a government left much to be desired), managed rather cleverly to combine the real intellectual's lack of consistency with a career on the left of the Labour Party, while maintaining friendships across the spectrum from Bevan to Gaiskell to Wilson, though not, he said, sincerely. He was also, much unlike the typical academic, an incautious risk taker.

For "Dick Double-Crossman", with wartime experience in psychological warfare, ended justified means and most truths were fleeting. Here was a man with many of the hallmarks of a gifted teacher, employing a variety of mediums from the lecture theatre to the *Sunday Pictorial*, with an interest in argument *per se*. Yet this trait put a brake on his capacity to persuade, for his reputation as a man who disagreed with whoever he had last spoken to, raised doubts as to whether that which he was denigrating today he would not be demolishing next week.

At base he was his own man, disloyal, undependable, and - incapable in a man of action - too much given to observation and self-examination (witness the huge diaries) to be an effective performer. His political legacy was an incomprehensible pensions

plan and a memorably donnish assessment of Tony Benn: "alpha for presentation, gamma minus for content".

Conservative politics throw up few examples of this sort of academic rogue elephant in politics, but Sir Keith Joseph, fellow of All Souls, is an intellectual very far from being a routine politician, whose role during the Thatcher years has been that of self-critical proponent of the intellectual case for free market Conservatism. With a frankness uncommon in politics he has admitted error in supporting Heathian inflation and in imposing administrative changes in the health service, but his survival as a tortured intellectual in the higher reaches of government owes everything to the prime minister's loyalty to a friend. Sir Keith is moreover not an academic *per se*, but a businessman.

Significantly, most of the academics in the House were never simply just academics; many had been other things: manual workers, broadcasters, lawyers, executives, diplomats, schoolteachers, political aides. Only one as an industrial economist, spent their time in academic life between graduation and election of Parliament.

Thus the academic MP is not an academic in the fully cloistered sense, nor, very importantly, do they see themselves as such, or envisaged a return to academic life if forced to leave the House. Indeed in most cases such a return would be impossible; the academics who have left the lecture room for the insecurity of politics have burnt their boats. This certainly explains in part the notable absence of a group identity among academic MPs. Few are able to name readily other academic members, and significantly, the names most often cited are those MPs known for an especially donnish manner, such as Mr Robert Rhodes James or Dr Jeremy Bray.

Few of the Commons' dons wish to be so categorized and many express surprise when shown a list of their number; few still regard such a list as a mark of academic excellence; "third rate" was the judgment of one former academic turned broadcaster as he cast an eye down the column of names; while another described one Labour front bench academic as "unable to put two words together".

The absence of a group identity among academic MPs of course has other roots too. An academic community, as a glance across any senior common room confirms, is a fragile one, divided by an array of subject specialisms, each with its own little snobberies and each tenaciously defending territory. It is difficult to build a sense of professional identity from a disparate range of interests, notwithstanding the fact that most academic MPs shared the relatively common culture of social science. That this makes no difference is due to a far more telling factor: the belief among academic MPs that the label "academic" or "intellectual" is one best avoided.

Suspicion of the intellectual is a traditional British complaint; as Dr Roy Strong has observed "the British do not like intellectuals, (or) rather they do not like intellectuals who fail to conceal that they are"; the qualification is perhaps important.

With the Conservatives, described by one of Labour's academic MPs as "the stupid party", tradition decrees a certain anti-bookish skepticism. Thus, when the outraged Leicester-shire MP, who exclaimed "What, hush across ploughed land? I'd sooner read a book!" If books are somewhat

suspect their subject matter may redeem the reader. Thus the short-sighted stockbroker winging his way home down the line of Linkbook, notes with bemused surprise a fellow commoner reading what appears to be *Knot's Landing*, only to discover on closer inspection the incomprehensible and bizarre *Knots by R. D. Laing*.

In the present House there are, medics excluded, five Conservative MPs employing the title "Dr". One of them, significantly, believes his political career to have been held back by his use of the title, redolent as it is of intellectualism, aloofness, detachment from reality, impracticality, and perhaps most important in Conservative terms, evidence of ability unapplied. Cleverness in itself is not suspected, but making a profession out of it may be. There is too the belief that academics as a race are unfavourable to the Conservative Party. Certainly an academic background is a drawback at selection level; one MP downplayed his university post at his selection conference, stressing rather his seven years as an industrial economist.

In Conservative middle England two positive images of the intellectual prevail: that of the old fashioned eccentric, such as John Betjeman, on whom preservation orders were quickly slapped; and that of the intellectual as mad inventor, preferably with the middle European accent. And there is perhaps a third: that of the intellectual not merely as clever but slightly dotty (Sir Keith Joseph), but as clever and high born, as in the case of another fellow of All Souls, the Honourable William Waldegrave. Brains mitigated by birth make a powerful combination and overcome the problem that the social origins of academics are generally low; they being the soft-faced men who did well out of the wartime Education Act. The party of Thatcher and Tebbit may be more meritocratic, but appearances too still count.

On the Conservative benches, of the handful of academics, half are in government. Neither of the academics most identified with the university interest, Robert Rhodes James, who is responsible for liaison between the party and higher education, and his predecessor in that post, Dr Keith Hampson, who is also one of the Association of University Teachers' Parliamentary advisers (the other being Alan Beith), had by 1984 enjoyed much preferment. Mr Rhodes James, the member for Cambridge, claims to have influenced policy on matters such as student grants and the University of Ulster; at the same time he acknowledges the weakness of the higher education lobby.

Another Conservative academic, Chris Hawkins has cut a different dash. A man not without backroom influence in Conservative policy making (notably in respect of council house sales), he has brought an academic's rigour and sceptical eye to bear on the aspects of Government legislation and Parliamentary management since his election in 1983. He is perhaps the sort of idealist uneasily absorbed into the conformist culture of Conservative politics. Nor have Sir Keith Joseph's efforts at intellectualizing contemporary Conservatism done much for the esteem of intellectuals, for interest on the Right in such reflection slight.

In Labour's case, the prejudice is of a different order. First, in view of the large number of lecturers selected as Labour candidates, it is less apparent. But most of Labour's academic standard-bearers are drawn from the non-university sectors of higher (and further) education, and the universities in

particular are not part of Labour's natural constituency. The charges of social elitism and irrelevance are variously levelled by the Party at the universities, one consequence of which was the stamped across the SCRs to the SDP in 1981.

Furthermore, while middle class academics, mostly of pragmatic bent, were prominent in the Wilson governments, the very failure of those governments and the subsequent failure of Labour leaders to take enough account of the disappointment of Labour activists, has led to the rout of the intellectuals.

Four or five of the academics on Labour's benches fall into this latter category, seen by a rightwing academic colleague as "the crap talkers", but the overwhelming majority do not; the pragmatic prevail over the dogmatic, and Labour's academic MPs. Contrary to popular belief, there is not a single "polycrat" (leftwing polytechnic lecturer) in the PLP.

For proof of Labour's indifference to higher education, and to the universities in particular, one has merely to consult *Labour's Programme 1982*, a 284-page book on which the 1983 election manifesto was based. There, in less than three pages, under the heading "Education after eighteen", the word "university" appears three times, twice after the word "Open" and once before the words "Grants Committee".



All Souls fellows: Joseph and Waldegrave

Few of Labour's academic MPs are known for their espousal of higher education; 12 hold frontbench portfolios, but only one, Barry Sheerman, shadows education, and then only those matters relating to youth training.

Similarly Robert Kilroy-Silk has built a reputation on penal reform; Austin Mitchell on economic matters, and Michael Meacher, Labour's senior academic frontbencher, on health and social security matters. When academic Labour MPs do put down questions on educational matters it is usually to champion the cause of the 16-19 year olds, defence of the Open University and the claims of the polytechnics.

Matters on which an MP specializes are not entirely of his own choosing, and Labour MPs in particular have to take account of constituency interests and, increasingly, activist opinion. Whether or not Labour MPs will speak up for a higher education sector regarded in the party as having been indulged at the expense of nursery and post school further education, will depend much upon the nature of their constituencies.

MPs with universities, and therefore large concentrations of student voters, may take an interest at least in the student grants issue. But not even the force of student numbers offer much hope to the university lobby, the scale of the Government's victory in 1983 having ensured that all but seven of the twenty-nine seats in which students comprise more than 8 per cent of the electorate were captured by the Conservatives.

In the view of one sympathetic Conservative MP, there is no leader issue in the House of Commons today than that of higher education. Or, equally discouraging, no doubt, to the anxious don, is the remark of the Labour MP, formerly a lecturer in politics, who when reminded of an Essex academic's pessimistic prognosis of Labour's current condition said, "most academics I've ever known have been 'wrong anyway'".

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Ernest Boyer



Building a community raft for the socially adrift

In the current debate about education in the United States, an underlying concern is that young people lack purpose and a sense of direction of their lives. They claim to be career-oriented, but this commitment has only to do with making a living or "getting by." Many have found nothing bigger and more enduring with which to identify. They are socially adrift.

Do schools and colleges have an obligation to lift the vision of youth, to get them out of themselves and into concerns that transcend the institution as well as the isolated person? Educators have, for decades, talked about building a sense of community on campus, of helping to teach social and civic responsibility to all students.

While this is what educators say they are trying to accomplish, in real life a quite different message often is conveyed. Young people frequently are treated as though they are feckless and irresponsible - forever adolescent. Visit any American high school, walk the corridors, check the bulletin board, look at the graffiti, have lunch in the cafeteria, listen to the public address system, and you will hear and see how students are controlled. Some have called this "the hidden curriculum." There is, in fact, nothing hidden about it. It is perfectly visible - and audible - to all.

Schools become places of strict boundaries, both physical and social. One student, talking with us during our study of American secondary education, explained the social geography of the school cafeteria: "Of course there are the cliques. There are the jocks, over on the side of the room are the greasers, and in front of you are the preppies - white preppies, black preppies, Chinese preppies, preppies of all kinds. The preppies are the in group this year. Jocks, of course, are always in and greasers are always out."

While some students participate in school activities, frequently they join not to serve but to promote their own special interests. One student candidly confessed to us: "You hear a lot about colleges looking for good students who are well-rounded. You get the idea that it's important to join activities in order to show colleges that you're interested in something besides grades."

And a Korean student, advising his younger cousin, was even more succinct. "If you want to get into Harvard, sign up for some extracurricular activities." A junior-year student offered this explanation: "Students don't join the French club to experience French culture but because Yale will be impressed."

At an academic high school we visited, there are 64 separate clubs, squads and teams. Some students at the school belong to as many as five groups, a level of participation that is, itself, unusual. There is an astronomy club, an Asian society, a Latin cultural society, a West Indian club and an Irish society. There are debating, math, swimming, gymnastics, handball, and track teams. Students can join a Frisbee team, a photo squad, and an honors society. They edit 12 publications, including the newspaper, a biology journal, a feminist publication, a social studies journal, and a math journal. And yet students complain of feeling unfulfilled.

Today it is possible for American teenagers to finish high school and yet never be asked to participate responsibly in life beyond the campus. They are encouraged to spend time with older people who may be lonely, to help a child who has not learned to read, to clean up the litter on the street, or even to do something

meaningful at the school itself. And the same thing is true for college and university students who often remain detached from the larger world of which they are part.

We conclude in the Carnegie Report on Secondary Education that during school years young people should be given opportunities to reach beyond themselves and feel more responsibly engaged. They should be encouraged to participate in the communities of which they are a part. Therefore, we recommend that every high school student complete a service requirement - a new "Carnegie unit" - involving volunteer work in the community or at school. And there is no reason why this same idea, this service requirement, should not be a part of the college curriculum.

The Carnegie unit, as historically defined, measures time spent in class - academic contact time. This new unit would put emphasis on time in service. The goal of the new Carnegie unit would be to help students see that they are not only autonomous individuals but also members of a larger community to which they are accountable. The program would tap an enormous source of unused talent and suggest to young people that they are needed. It would help break the isolation of the adolescent, bring young people into contact with the elderly, the sick, the poor, and the homeless, as well as acquaint them with neighbourhood and government issues.

The service program we propose for secondary schools would work like this: during each of their four high school years, students would do volunteer work in or out of the school. They could tutor younger students, volunteer in the school cafeteria, office, audio-visual center, or maintain sports equipment and playing areas. They might also move beyond the school - to libraries, parks, hospitals, museums, local government, nursing homes, day-care centers, synagogues or churches.

This new Carnegie unit would not be bound rigidly by calendar or clock. The amount of time could vary. We suggest, however, that a student invest not less than 30 hours a year, a total of 120 hours over four years, in order to qualify for one Carnegie service unit. Students could fulfill this service requirement evenings, weekends, and during the summer.

The proposed service program will require careful supervision. Jerome Kagan, professor of psychology at Harvard University, comments: "Acts of honesty, cooperation, and nurturance are public events that the staff of a school can tally and use to assign individual evaluations that are understood to be essential complements to subject mastery. We do not keep such records as faithfully as course grades, because we do not believe the schools should judge motives and behavioral attitudes toward others - that is a task for the home and police department. But judging youth on standards for action and talent would make it possible for many more students to participate in, and identify with, the school community."

John Dewey wrote on one occasion: "A society is a number of people held together because they are working along common lines, in a common spirit, and with reference to common aims." The radical reason that the present school cannot organize itself as a natural social unit is because just this element of common and productive activity is absent.

A service term for all students will do much to help build a sense of community and common purpose within a school or a college. In the end, the goal of service to educational institutions is to teach values - to help all students understand that to be fully human one must serve.

Marxism without tears

"Open University courses accused of Marxist bias" and "Sir Keith sends for copies of OU course units" are the sort of headlines that shell-shocked staff at the Open University have grown accustomed to seeing as they scan the newspapers for indications of their likely fate in a period of cuts and of fears about their future. For sociologists, the situation is particularly acute because they are thought to be the chief offenders of the sensibilities of our political masters and their media allies.

For better or for worse (I happen to think for the better) it is sociology, perhaps more than any other discipline, that has taken an interest in, and been influenced by, developments in Marxist thought. Consequently, in the current climate, it is sociology courses that come under scrutiny for evidence of "Marxist bias" - a mysterious complaint that seems to be as insidious and as deadly as Legionnaire's Disease. No matter how hard we try to exclude it, by submitting ourselves to outside assessors for regular check-ups, or by performing healthy analytical exercises on the works of non-Marxists, such as Durkheim, Weber, et al, we are still suspected of letting it in.

Unfortunately, the whole of British sociology seems to be under a cloud at the present time and is considered by some to be beyond cure, and so I took the opportunity of a recent research and lecture tour in the United States to ascertain how the discipline is faring at the undergraduate level in some of America's leading universities. I found that, in terms of numbers, things were beginning to pick up after a decade in the doldrums. Although still lagging behind economics and some of the other disciplines that have found favour in a cold economic and political climate, departments such as those at Berkeley and UCLA were beginning to grow again. However, with respect to intellectual challenge in course content, the courses with the largest numbers, those teaching introductory sociology, seemed not to have progressed at all over the last decade.

One of my purposes in examining American introductory sociology courses was to see how they handle Marxism and what Tom Bottomore has described as the "rich and varied Marxist thought" in recent years. According to Bottomore's perception, as a past president of the International Sociological Association, Marxist ideas have given rise to several new orientations in sociology, the two most prominent being "critical theory", deriving from the Frankfurt Institute, which was reestablished in Germany in 1953, represented by figures such as Habermas, Adorno, Horkheimer and Marcuse, and "structuralist Marxism", deriving from the methodological studies of Louis Althusser and the structural anthropology of Lévi-Strauss.

More generally, there has been a revival of a Marxist or neo-Marxist political economy approach, which has seemed relevant to a sociological explanation of what has been happening with respect to the development of the capitalist economic system, the functioning of the modern state, especially its role in economic management, Third World development and underdevelopment, and the political significance of changes in the class structure, including the impact on women and other disadvantaged groups.

These orientations have been so widely diffused throughout European sociology that it makes little sense to refer to Marxism as a monolithic entity; there are now many Marxisms,

Junk food or a balanced diet: Kenneth Thompson looks at the teaching of sociology in America

neo-Marxisms, and sociological perspectives informed by Marxist ideas. Similarly, the list of key figures who have stimulated debate are not easy to label, but a majority of them appear in most introductory sociology courses in British universities (including the Open University). Among them are such names as Habermas, Adorno, Marcuse, Althusser, Lévi-Strauss, Godelier, Poulantzas, Gramsci, Mandel, Braverman, Gunder Frank, Lacan and Foucault. It is a surprising fact, but one which I discovered to be true after examining about two dozen introductory sociology courses in America, that few of these seminal thinkers are mentioned in the thousands of American students who take an introductory sociology course.

If we were to follow the reasoning of those who make accusations of Marxist bias in Britain, we would have to conclude that this is a case of anti-Marxist bias, for there is plenty of evidence that American sociologists are familiar with at least those Marxist works that are relevant to their research specialism. But this would be to jump to the worst conclusions without taking the trouble to look for other explanations.

One cannot help suspecting that those who search for bias are too interested in promoting their own political viewpoint to be able to stand back and make a fair judgment about what is most intellectually stimulating in current sociology, and then to look for reasons as to why it does not get taught. Among those reasons are conventions about what should be taught at the introductory level (usually, too much too thinly); how it should be organized (coverage of all major institutions, dimensions, perspectives, concepts); and institutional factors affecting who teaches the courses and the pedagogy to be followed (the youngest member of the department, teaching assistants, lectures followed by multiple-choice question tests).

It would be easy to caricature many American introductory sociology courses as resembling cafeterias serving junk food. One respected Harvard professor, James Davis, recently used that expression to describe many such courses, although he had a specific criticism in mind when he referred to them as serving "intellectual junk food of debilitated nineteenth century verbal speculation." His complaint was that they dislaid the "nourishing platter of knowledge about contemporary society produced by modern research". The treatment of Marxist ideas in introductory courses would support his point; they often give the impression that the *Communist Manifesto* was the last word in Marxist theoretical development, and there is seldom any mention of modern research stimulated by lively debates over Marxist ideas.

Instead of presenting such debates and analyzing the relevant data, students are presented with a virtually non-existent, phoney debate about

supposedly competing paradigms, usually this involves contrasting a so-called conflict paradigm with a functionalist paradigm. Because these courses try to attract as many students as possible, before the students have chosen their major, there is a tendency towards eclecticism, with the aim of pleasing everyone and offending nobody. The only way of cohering all this at the macro-theoretical level is talking in terms of very general paradigms.

Unfortunately, a serious distortion occurs when Marxism is collapsed into an amorphous conflict paradigm, and this distortion (which can seem like bias) is worsened when this paradigm is treated as if it is commensurate with paradigms such as functionalism or symbolic interactionism. Thomas Kuhn, in *The Structure of Scientific Revolutions* (1970), identified two basic characteristics of a paradigm: a group of adherents, and it should provide them with a basis for the kind of puzzle-solving he called "normal science". The conflict paradigm fits on both these counts. Because of the extreme theoretical diversity included in this single paradigm, most courses and textbooks which refer to it still their attention from a supposedly common method of analysis to an assumed common subject-matter - conflict. But this is so vague and misleading as to be Marxian in concern, that it is not surprising when the real debates in which Marxism is engaged fail to appear, and students are left with an artificially constructed debate about the relative merits of focusing on social change/conflict rather than social order/stability.

The conclusion usually is that both should be included; but this misses the point that the strength of recent Marxist contributions to sociology lies in the fact that their analyses of modes of production and the processes of reproduction address questions of social order and social change. My own experience at the Open University, and an external examiner at another university and a polytechnic (as well as teaching in America) convinces me that given the opportunity, even the weakest student can grasp the point that Althusser and Gramsci were just as interested in the ways in which social order is produced and reproduced as were Durkheim and Talcott Parsons.

There is a growing awareness of concern among American sociologists about their failure to provide a substantial intellectual challenge to students who are being introduced to sociology for the first time. In an important address to the 1982 annual conference of the American Sociological Association, Gerhard Lenski said that most American Sociologists were not too happy with the public image of their discipline, which was often perceived as little more than the elaboration of the obvious packaged in confusing jargon; and the major cause of this was that the many hundreds of thousands of students who enrolled in an introductory sociology course each year, and for whom this was their only exposure to academic sociology, came away with the impression that there is little or no intellectual substance to sociology.

The solution, he said, was to provide a substantial intellectual challenge by focusing on certain key issues. Among the main issues he mentioned were the historic transformation of societies and the causes of these transformations; the theory and practice of capitalism and of revolutionary socialism; as well as the successes and failures of both. The failure to acknowledge these contributions and to present them to students could well invite charges of anti-Marxist bias. In fact, as Lenski indicates, it is more an institutionalized bias against presenting students with a substantial intellectual challenge. As Bernard Crick put it, with regard to the inspection of sociology teaching at the Polytechnic of North London: the real issue is reduction of theory to rote-learning rather than, as Marxist or any other kind of bias, because rote-learning is bias.

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Are we facing an intellectual crisis? There are signs that some people think we are. The alleged sterility and lack of practical relevance of philosophy has been discussed recently in *The Guardian*, and there is a plethora of demands for alternative ways of thinking about science, society and of man's place in the totality of things.

The fragmentation of knowledge and the increasing specialism which it engenders is criticized and the role of the professional is questioned. There is a tendency to turn to highly personal views of the world and to extol the importance of subjective responses. There appear to be fewer shared public standards and values in the arts, in ethics or in politics, and the individual becomes the most important point of reference in a climate which favours relativism in all things, including a relativist epistemology.

There are no doubt many reasons for these trends, and one might be the sense of despair and powerlessness felt by ordinary people in the face of military technology, the despoliation of natural resources, world poverty, and the power seeking and oppression. It is tempting therefore to accuse philosophy of having failed us and to expect of philosophy a new vision, a new set of perspectives which might



They hand in hand with wandering steps and slow Through Eden took their solitary way.

Waiving goodbye...

It is still the practice in most UK universities to insert waiver clauses in short-term contracts with research workers and others. These clauses provide that at the end of the contract the employee will not be able to claim either a redundancy payment or compensation for unfair dismissal if he is not offered further employment. The Association of University Teachers has mounted a campaign against these clauses.

Employment protection legislation does not usually permit employees to contract out of their statutory rights in this way. Contracts to exclude the right to maternity leave, for example, would clearly be void, unless the employee was outside the legislative protection anyway, as at GCHQ.

Because of this, the law about waiver clauses is strict. The employee must have agreed in writing to exclude his rights. A written notice from the employer is ineffective unless the employee has signed that he agrees to the waiver. The waiver can only be validly included in a fixed term contract, that is one which has a definite beginning and end. A contract for three years which can be terminated by either party at an earlier date by the giving of notice is not a fixed term contract, but if the employer chooses to terminate early rather than let the term run its full

Looking for a new vision

Kenneth Lawson argues that philosophy has not failed us

give us hope for a future in which there is no longer a sense of progression and improvement.

It is said that British philosophy has turned away from the large issues and buried itself in a fruitless and pedantic study of words. No longer does it tell us anything about the world. This task is left to the scientist.

There is a good deal of truth in these claims and they are manifestations of the development of specialization in knowledge and our categorical thinking which leads us to articulate our thoughts in ever more refined categories of concepts, each of which becomes a frame of reference discrete from others, jealously protected by the specialists who understand one small sector. But there are strengths also in this, because specialization has helped to make possible the many advances in science and technology as well as in many other fields of human endeavour.

What we are facing, however, seems

to be a sense of dissatisfaction with the empirical basis of the scientific approach which at its narrowest has been described as a concern only for "number crunching" and "pebble counting". Such a conception of science is a gross distortion which overlooks the other aspect of science which involves the generation of hypotheses, explanatory and predictive theories. In many instances, such as astronomy and nuclear physics, the problems raised become very close to being philosophical in character.

What science has done is to teach us to look and to test instead of leaving our thought in the realms of hypothesis and speculation. It has taught us to frame our propositions in such a way that they might be related to the experience of more than one person. They are formulated in such a way that they can be tested and verified by anyone who replicates the situation. This in part is what we mean by striving for objectivity, and it involves public activity as distinct from personal introspection.

This is the culmination of a long philosophical tradition in which empiricism has been a central theme. It may be that its very success has produced an explosion of knowledge which we cannot cope with and therein lies a disintegrating process which might be taking western culture to the end of the road. What we are witnessing might be the beginning of a decline in our culture. Moves to a more subjective experiential approach can therefore be seen not as progress but as a reversion to a pre-scientific culture where the danger is that what we think cannot be tested. In such a situation, we might find that in the end there is only dogma and mystical belief. We depart from the empirical tradition, therefore, only at great cost.

Without external reference points against which to test and to validate hypotheses, our beliefs were left with no criteria by which to testify to the truth from the false. We have no means by which to distinguish sense from nonsense. On my own I cannot distinguish recollection and remembrance from imagination and fiction. Only my ability to check against evidence will show that what I recall as happening actually did happen in the way in which I remember it. As A. J. Ayer once argued, there can be no private language with reference points against which to identify the experience to which language refers.

That such arguments can be expressed says a lot about the contribution which has been made by philosophy. It has helped to produce the intellectual basis of our culture. It would be mistaken to complain that philosophy told us nothing about the world, because that is not really its function. It helps to establish and refine the ways

in which we might find out things about the world.

It is not a weakness in philosophy to concern itself with language. There are plenty of questions to be asked about the logical features of knowledge, meaning and communication as well as about issues in ethics, social relationships, law, justice and politics. Philosophy provides insights into the ways in which we think about such issues, it helps to define the limits of thought and of experience and to establish the boundaries between them. It clarifies concepts and the tools with which we think. It helps to provide the means whereby we can try to understand the world but it does not itself look directly at the world. This is why philosophy is termed a "second order activity".

The methods of philosophy are therefore inevitably linguistic and logical, because it too has to establish ways in which philosophical claims might be tested. One method has been the resort to "ordinary language" as a reference point against which to sift sense from nonsense. The method might not be perfect but there seem to be few alternatives which do not take us into meaninglessness.

Perhaps we have to accept that we are limited by the trivial and the banal and that it is part of the human condition. Philosophy has also helped to distinguish between modes of thought and between different kinds of language. The rather old-fashioned anti-scientific approach can therefore be seen not as progress but as a reversion to a pre-scientific culture where the danger is that what we think cannot be tested. In such a situation, we might find that in the end there is only dogma and mystical belief. We depart from the empirical tradition, therefore, only at great cost.

The language of theology is often symbolic and metaphorical rather than literal. It is expressive and not descriptive, but it deals nevertheless with

fundamental questions which worry mankind. In the Genesis story one can discern the recognition by man of his own self-awareness and individuality and the subsequent alienation of man from his environment. There are recurring themes, and alienation from society and the growing awareness of our need to establish a sense of unity with each other and with the rest of the physical world are manifestations of the same sense of crisis.

Philosophical theology has helped us to recognize such affinities with more modern forms of thought and we can with profit return to texts which otherwise would seem to be outmoded.

However, philosophy emerges as a critical apparatus and its exponents have no special claims to be in possession of techniques for producing definitive answers to substantive questions. They have no uniquely privileged view of the world and it is expecting too much of philosophers to expect that they have. Their role is to sharpen and hone concepts, to note contradictions and paradoxes, to identify implications and corollaries.

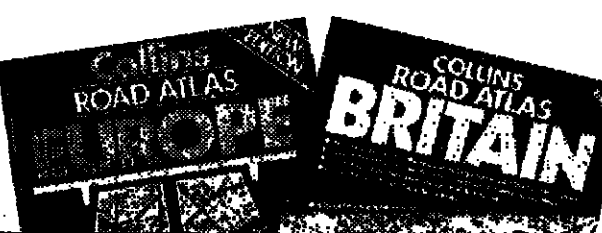
Despite the presence of recurring themes in each age, there are also new themes. Philosophy, as with other disciplines, is evolving and there have been many landmarks at points of critical change, but each is related in various ways. What is difficult is to predict where change will take place or even to recognize change while it is taking place. It is even more difficult to judge whether change is also progress. Philosophy can help us to discern what the concept of progress means but it has no special criteria for telling us what progress is. That depends on frames of reference and value judgments made within them. It is no small feat that philosophy helps us to understand what value judgments are and if it does just that, it can hardly be said to have failed us completely.

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Methuen, £25.00
ISBN 0 416 36530 2

As Britain and her eight partners in the European Community glare at each other in hostile incomprehension, the one incredulous that the others should hold on to so manifestly an unfair distribution while these, in turn, express resentment that anyone should be willing to rock the boat so dangerously for selfish national reasons, it behoves us to look at the means and the assumptions which brought western Europe together originally. And these assumptions, Alan Milward informs us, were very different from what the literature has suggested.

This is a revisionist, iconoclastic book. It is hard to think of anyone else who could have written it with such verve and such detailed knowledge (much of it from hitherto unused sources), or who could have moved with such consummate ease between the two levels needed for such an enterprise, the broad economic and strategic needs and constraints of the countries of western Europe, and the detailed day-to-day diplomatic footwork with which each of them sought to maximize its opportunities in practice. On the whole, it makes sense, and convinces. After reading it, one finds that numerous pieces hitherto puzzling or inexplicable fall into place. It is clear that much of the existing literature has been rendered obsolete by this work.

Milward makes two major novel points, which are interconnected. The first is that the Marshall Plan, the European Recovery Programme, was conceived under false premises. There was no threat of economic collapse in Europe in 1947 nor, therefore, was there a danger that poverty and disillusionment would drive the European masses into the arms of the Communists - though it was in the interests of many to say so: the Europeans, in order to get American funds, and the US administration, in order to persuade Congress to release those funds, for the purpose of building up an anti-Soviet alliance. In as much as there was a crisis in 1947, it was one of balance of payments difficulties, mostly against the dollar, and these, in turn, were caused, not by the running down of the European economies, but by the excessively ambitious postwar expansion plans pursued by their governments. It was these plans which ultimately, together with some other favourable factors, sustained the prolonged western economic boom until it collapsed with the first OPEC price increase, and which should therefore be dated from 1945 and not, as is usually the case, from about 1950 or 1951.

Milward's second argument calls for



A David Low cartoon, "Schuman Symphony", with the caption "It's just a question of making an arrangement to fit the band".

an even more fundamental revision of traditional assumptions. It is that the postwar moves towards the "integration" of western Europe were not in the least caused by conversion to liberalizing, freer trade and payments views on the part of the Europeans, but by the familiar and time-honoured pursuit of particular national interest - though a goodly measure of idealism was no doubt present and active among many leading individuals and states.

In what is perhaps a key sentence for the whole book, Milward writes that as a result of it all, the economic distortions of the prewar national policies were replaced, not by the anonymous efficiency of the free market, or of an expert technocratic decision-making body, but by a set of complex regulations arising from the careful balancing and adjustment of the interests of the various nation states to allow them to achieve particular national objectives" (page 418). What looks superficially like a cessation of sovereignty for the common good, and has even led to exaggerated claims about the rise of some supra-national "functional" sovereignty, was in reality nothing more than a set of finely tuned package deals by governments who were not prepared to give up any part of their freedom to manoeuvre in the purely national interest. It just so happened that at various critical times,

their interests were best served by concrete steps towards economic integration.

It is well known that the American attempt to use the European Recovery Programme to force the Europeans to draw together and free their internal trade relations, failed abysmally - though, only a few years later, the Schuman Plan for coal and steel emerged successfully among the Six; similarly, the Bretton Woods mechanism for settling international payments remained largely unused in those years, while the European Payments Union - dropped up by ERP funds - became an active instrument of settling intra-European debts. The motivation of the Europeans was, in fact, totally different from the hopes of their American mentors, so that even internal policies which outwardly appeared similar, had a quite different internal logic.

Thus the French, in the immediate postwar years, were harassed by the vision of a resurgent Germany, a fear by no means allayed by the *volée-faire* of the two Anglo-Saxon powers over the administration of the Ruhr and the reduction and dispersal of German heavy industry. France had an economic plan, and at the centre of it was a powerful steel industry requiring coal and iron ore. As soon as it became clear that France would not be in a position to share as an occupying power in the control over German raw

material supplies or steel capacity, her leaders, in the interests of her security as well as of her economic strength, began to seek the fulfilment of the same aims by the integration of the French and German coal and steel markets: "the Schuman plan was invented to safeguard the Monnet plan" (page 395). The Germans, for their part, welcomed the Schuman initiative in order to get rid of tiresome Allied restrictions and interference. Each of the other partners similarly followed intelligible national needs, and in each case fought hard, in weary item-by-item negotiations, to have them met and recognized by the others. Thus the European Coal and Steel Community was born, and thus also an agricultural "common law", intended in the early 1950s to co-ordinate sectoral integration among the countries of "Little Europe", founded only at the last moment, but not without creating considerable political leverage for the farming community. Between them, these contained the seeds of the later European Economic Community.

It is one of the merits of this book that it looks at the world not, as most British works on this topic do, from an insular point of view, but from the point of view of the Europeans themselves. Nor light is thereby shed also on the British failure to make the most of their available postwar opportunities, and, beginning with the most favoured position of all, end in a

position of economic weakness and political isolation.

To some extent, that failure was pre-programmed. Much of the freedom to manipulate and to plan, enjoyed by the others, was constrained by the Sterling Area, which hung like a millstone around the necks of the British negotiators, endangering British reserves, turning British attention away from Europe, and inducing British ministers and diplomats to sabotage or contain all continental initiatives, in the hope that they would go away or die a natural death. In those early years, Britain appeared politically and economically to be in a much firmer and less threatened position than most of the rest. She could rely on traditional methods of international relations, in drawing cheap food and raw materials from overseas territories rather than subsidize high-cost European farmers, and conduct her Keynesian employment policies as a solo performance. As a result, her representatives, while carrying on short-term negotiations with their wretched professional skill, could afford to consider any longer-term issues with mere "rambling and ignorant self-indulgence" (page 510). There simply was no pressure, as in the case of some of the others, to envisage the future in any fundamentally different framework from the past.

It is therefore all the more surprising that the key economic issue for Britain, the failure to share fully in the long postwar boom and to grow at the rate of all the others, is treated in this study, very much in the British historiographical tradition, from the point of view of the British policy-makers. Essentially, the failure is seen as a failure to make sales, particularly by hitching the British wagon to exports to the slow-growing overseas markets, rather than to the fast-growing markets within Europe. Yet it ought to have been clear, precisely from the detailed statistics on which this study is based, that in the key years to 1950 it was the inability to make more, rather than to sell more, which limited British growth. Thereafter it was the failure to extend capacity, in part because so much of the scarce British engineering resources went into the Korean War, and later because too much was consumed, and not sufficiently invested with the astonishing prodigality it was, the author observes correctly, the fast growth which made a success of the EEC, rather than the EEC which ensured fast growth.

This is an indispensable book for anyone who wishes to be able to discuss intelligently the reshaping of Europe after the war. Provocative today, the chances are, when its lessons have been digested, it will form the foundation of a new orthodoxy in the future.

Professor Pollard's latest book is *"The Wasting of the British Economy"*.

BOOKS

Mind over masses

Studies in the History of Educational Theory

Volume two: *The Minds and the Masses, 1760-1980*
by G. H. Bantock
Allen & Unwin, £25.00
ISBN 0 04 370119 1

Professor Bantock's latest book is accurately described by the title. It is not a through-composed history but a series of selective studies. In part the thinkers studied are chosen for their ability to cast an unexpected light on the problems of education today. Of course, their views are expounded in their own right but there is a persistent subtext which invites the reader to note the unexpected and consider whether it is really all that out-of-date.

Some of the studies are of people who are not always thought of in their role as educationists, such as Colingridge, Nietzsche and Tolstoy. These are large figures whose total perspective is at least bound to generate provocative views in the field of education. Other figures chosen are, perhaps, not very well known at all, such as Vicinus Knox, an Anglican priest who became headmaster of Tonbridge School in 1778. His views are nicely contrasted with those of the Unitarian minister and scientist, Joseph Priestley. Of course, the expected figures are also treated: Robert Owen, Johann Pestalozzi, Friedrich Froebel, Matthew Arnold and John Dewey.

The organizing notion behind all these studies is indicated by the two pictures on the front cover. One is

Caspar David Friedrich's "The Wanderer", showing an exemplar of high romantic mind posed in contemplation over the ever-receding peaks of knowledge. The other is a photograph of Lenin addressing the masses in order to liberate them from their trade union consciousness and force them into that freedom which they do not yet recognize as their destiny. This issue of mind over masses plays into the related issue of collective consciousness and individual autonomy. Other nodes of concern are artifice and nature, civilization and instinct. Some of Professor Bantock's thinkers exalt genius, or the *sprezzatura* of the humanists, or the supremacy of knowledge as the proper key to power; others exalt the good man or the true self; yet others embrace a romantic pessimism about children, or peasants, or the working class.

Perhaps the most important chapter and culminating focus is the chapter on the twentieth century. Bantock begins with a catalogue of what he sees as the complacencies which characterized "the ruling intelligentsia" almost up to the 1970s. They still trusted in the power of institutions, especially educational ones, to ameliorate the human condition. The notion of self-realization still reigned and child-centredness was pretty well unchallenged.

Bantock enters highly contentious territory by frankly lamenting the passing of the gentleman ideal. He believes that there is still a need to hold up some notion of "the noble life". This can only mean that he goes so far as to suppose that education is concerned with courtesy, gentleness, honesty, self-sacrifice, loyalty - and virtue. He also uses Dewey to criticize the idea that education can bring about "common meanings" which are anything other than mediocre. Dewey's liberalism is seen as degenerating towards the ideal of mediocre mateness and the view of the teacher as some kind of emanation of the group mind. Bantock holds that the typically Fabian confidence in "opera for the million" is misplaced. It is this Fabian premise which lay first behind the optimism and then the despair of educational sociologists. The sociologists

initially charted those factors which prevented a tapping of the "pool of ability". Then in more despairing vein they worshipped working-class cultures as more "authentic", and/or revived educational standards as "elitist" and part of the subtle imposition of middle-class "knowledge". The real (but secret) power of knowledge was the power of social control. Such notions were spread abroad in a way which undermined the confidence of the teacher, and were much assisted in that by the romantic primitivism of "doing what comes naturally". The result has been to reduce the further access of working-class children to the power of knowledge and of skills, and to the pleasures and disciplines of high culture. It became easy to leave them prey to the standards of the media.

I conclude with one caveat about this important and scholarly book. If I understand Professor Bantock rightly, he uses D. H. Lawrence as a stalking horse for the idea of an alternative "world culture" curriculum. The rationale for this seems to be Bantock's conviction that the Great Tradition can only be the property of an elite of intellect and sensitivity. Is he saying that to try to proselytise for excellence is to dilute excellence and devalue other and perfectly valid life-ways? If so this would further gut a working-class education already sufficiently gutted by progressivism and primitivism. Or is his real quarrel with the propagation of that particular and perverse definition of excellence which Lawrence attacked in the person of Bertrand Russell?

At any rate, he concludes in Leavisite vein by seeing in literature the path to moral insight and the possibilities of human experience. He laments "a world de-spiritualised, a nature neutralized, a language employed denotatively rather than connotatively, an anticipation of 'problems' and an expectation of 'solutions'".

David Martin

David Martin is professor of sociology at the London School of Economics.

Elite education

A Grand Ecole for the Grands Corps: the recruitment and training of the French administrative elite in the nineteenth century
by Thomas R. Osborne
Columbia University Press, \$26.00
ISBN 0 88033 037 6

It was immediately after the defeat of the Franco-Prussian War and the threatened social revolution of the Commune that a number of Frenchmen succeeded in founding the *Ecole Libre des Sciences Politiques*.

It was believed that the defeat of the French armies was to be explained by the superiority of the Prussian educational system and that the danger to French society arose from the failure of the French elites to maintain their supremacy. What seemed to be necessary was the creation of a more effective university, one where the study of the ancient world would be replaced by the study of the modern, where speculations and abstractions

Academic decline

The Western University on Trial
edited by John W. Chapman
University of California Press, £18.95
ISBN 0 520 04940 3

The International Council on the Future of the University (ICFU) is a body of eminent scholars which meets from time to time to confer loftily on such topics as the pursuit of truth in higher education and to condemn "democratization", "equalization" and "politicization" in universities. On the evidence of this volume, which is based on a conference held in 1981, it represents a gathering of conservative malcontents who hark back nostalgically to an idealized picture of universities which were small and collegial, where students were diligent and biddable, where academic colleagues agreed with the contributors of this book and where society paid a proper deference to the institutions which housed them.

No one can doubt that in Europe and the US there are matters of serious concern for universities but the trouble is that so many of the contributors embark on measured denunciations of the present condition of universities while offering little or no evidence to support their assertions. Thus John Chapman attributes loss of academic freedom in the US to the over high proportion of staff gaining tenure while presenting no comparative statistics of the tenure position at other times or in other countries, or any direct evidence of how the present figure has actually lowered academic standards. John Passmore sees the expansion of Australian universities as permitting the appointment of large numbers of people who, he admits, are adequately qualified but typically have "a second rate mind, intellectually, dreary, arrogant, cloaking incompetence in empty teaching or rhetorical verbiage". Nikolaus Lobkowitz went to

Germany to return "to our old standards and ideals" and fight "the spirit of the age". Who are the guilty men who have permitted this decline? For Professor Lobkowitz they are "the irresolute legislators, wavering ministers and weak university presidents who gave in to preposterous demands". For David Martin writing of Britain they are university bureaucrats and the Association of University Teachers. For Allan Broome of Chicago they are the professors whose internal "decay" has allowed grade inflation. For others the fault lies with governments who have encouraged an expansion in student numbers, programmes of affirmative action, or changes in university governance. Thus afflicted, however, the contributors to this volume have few positive solutions.

Although two chapters, one by Martin Bulmer on the problems of managing large-scale social science research in universities and Robin Winks on relations between universities and the US government, mark welcome exceptions, the general level of contribution is under-researched, and over strong in rhetoric. One or two are so weak that they do not justify publication at all. For the most part the contributors are philosophers, sociologists and political scientists but in only a few cases do they bring the rigour of their own disciplines to bear on the ills of higher education. Too often grandiloquent generalizations are substituted for analysis and scholarly assessment of the weaknesses of national university systems and their relationship to governmental or societal pressures.

Sadly one must conclude that the intellectual impetus which brought ICFU into being is now in decline. This volume is not to be compared in weight or scholarship with its 1975 predecessor *Universities in the Western World* (edited by Paul Seabury), and the arguments it contains are too often regressive and sometimes plain reactionary.

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Michael Shattock

Michael Shattock is registrar at the University of Warwick.



Members of a school on the remote island of St Kilda in 1886. The educational system had been extended to the island in 1884.

Disturbing results

The Working Class in Weimar Germany: a psychological and sociological study
by Erich Fromm
edited with an introduction by Wolfgang Bonns
translated by Barbara Welbarger
Berg, £15.00
ISBN 0 907582 09 5

Between 1929 and 1931 Erich Fromm and his associates at the Institute for Social Research at the University of Frankfurt distributed questionnaires to 3,300 workers, asking questions on subjects ranging from income and membership in political organizations to opinions about sex education and the wisdom of lending money to friends. Roughly 1,100 questionnaires

were returned, about half of which got lost when the institute moved to the United States. During the mid-1930s surviving 584 questionnaires were analysed, but the study which resulted was not published until 1980, in the Federal Republic of Germany. Now, happily, Fromm's investigation has been made available in English.

Fromm was concerned to examine the relationship between the "psychic structure" of individuals and their political beliefs, and simultaneously to address the question after 1933: why had the Nazis triumphed? Looked at today, the methods Fromm employed no doubt are open to criticism. The workers from whom responses were elicited were hardly representative of the working class in Weimar Germany: a very large proportion were actively committed to, or were even official in, left-wing political organizations; all lived in cities; none lived in eastern Germany; few were Catholics; and more than half claimed to be atheists. Fromm's categorization of "radical"

and "authoritarian" personality types is questionable on a number of counts and, as Wolfgang Bonns points out in a most useful introduction on critical theory and empirical social research, "gave an undoubted distorted picture of social reality (which ultimately mirrored the self-image and ideology of the Weimar Left)". The statistical correlations are, by the standards of present-day computer-powered social scientists, rather crude; the interpretations of the workers' responses often seem naive, simplistic and even politically loaded.

What value, then, has this study for us today? Fromm's work informs on two levels: the Frankfurt institute's work during the 1930s, and the attitudes of some workers during the tumultuous days of Weimar. The main conclusion of the study was, for its time, profoundly depressing: that only a "small proportion of left-wingers were in agreement in both thought and feeling with the socialist line" (something seen most clearly in the sharply negative responses to ques-

tions about equal opportunities for women). Indeed, Fromm was compelled to conclude that 20 per cent of the supporters of left-wing parties betrayed "a clearly authoritarian tendency". This was a deeply disturbing message, so much so that during the 1930s members of the institute opposed publication of the study, fearing that it would be seized upon as evidence that German workers were basically fascist.

In recent years German social historians have moved away from the rather simplistic assumptions of the left about the relationships between working-class life and working-class politics. However, it remains difficult to know what to make of a worker who, when asked on Fromm's questionnaire who he felt were the greatest personalities in history, listed: "Bismarck, Liebknecht, Edison".

Richard Bessel

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Policy as politics

The Economies of West Africa
by Douglas Rimmer
Weidenfeld & Nicolson, £13.50 and £6.95
ISBN 0 297 78095 6 and 78096 4

The last few years have seen the beginnings of a counter-revolution in the thinking of economists about what helps and hinders economic development. Douglas Rimmer has made a notable contribution to this reassessment as well as to the literature on the economies of West Africa - the 16 countries of the Economic Community of West African States, an organization that has, predictably, achieved nothing in the nine years of its existence.

While the main emphasis of the book was bound to be on Nigeria, Ghana and the Ivory Coast, which accounts for some 70 per cent of the population and at least 85 per cent of production, Rimmer has tried never-

theless to give the reader a feel for the region as a whole, sometimes perhaps at the cost of a certain weariness. The first few chapters provide excellent reasoned accounts of the economic structures, of populations and their activities, and of external trade relations. These chapters mostly confirm what one has always known or guessed, but every topic is so well documented that they will become the standard source. There is, for instance, an immensely useful table of real gross national product (GNP) growth per head for each country and for each of the last four decades. Given Rimmer's honesty and justified misgivings about the usefulness of GNP, which he spells out at length, the weeks spent compiling this table must have been a real labour of love.

It is the chapters on policy however, which constitute this book's major contribution. The key to understanding economic policy is to recognize that "policy is politics". What governments do can only be understood in the context of the motivations of their operators. The overt and declared aim may well be to raise output or welfare and to have a more equal distribution of income, but the latent purposes are different. "Public servants are mainly

concerned to retain their jobs, to obtain promotion, to enlarge their authority. Rulers, ministers and legislators want primarily to stay in power". One-party states result not only from the intolerance of governments for opposition, "but also from the disinclination of the opposition to be automatically excluded from government patronage".

Rimmer then proceeds to take apart one policy after another, demonstrating its origins, often to the surprise of the reader, and in the writings of highly respected academics who do not deserve the respect in which they are held. There is a brilliant refutation of the notion that development is crucially dependent on investment and on planning preceded by a devastating quotation from Gunnar Myrdal who should have been known better. Rimmer argues that what really matters in development is the exploitation of newly discovered uses for resources. The diversion of resources to these uses then occurs because it becomes profitable to do so. Import substitution, industrialization behind high tariff barriers and with every other form of government assistance is therefore unlikely to bring about development and, indeed, it has not.

Similarly, Rimmer demolishes the idea of a secular decline in the terms of trade for primary products. West Africa's major contributor to an increased standard of living since the Second World War has in fact been a huge increase in the purchasing power of exports over imports. This is the more remarkable when one recalls that farmers have had a very real deal ever since colonial governments first introduced marketing boards for export crops which, over the years have reduced farmers' incomes by 40 per cent - and even that ignores the further tax implicit in overvalued currencies.

The subject of foreign aid was bound to appear. The bulk of such aid does not appear in government accounts because it is received in kind and not in cash. Even so, aid to West Africa as a whole has not been of great importance, measured by the standards of GNP, investment or in relation to imports. That, however, obscures great international disparities. Much of the aid has gone to the very small countries to enable their governments to carry out tasks which would otherwise be economically impossible. Elsewhere aid has paid for education and improved health which is no bad thing, even if it has often been

very wastefully used.

This is the first book to bring together all the different strands in the new thinking about development, whether it be on agricultural pricing, industrialization, the role of foreign trade or planning and to apply them to the economy of a particular region. Even if it owes much to the writings of earlier scholars, it is an immensely valuable thing to have done, and to have done so meticulously. However, Rimmer also makes many original contributions himself to that new thinking, especially in his recognition of the interactions between economic and politics and the way in which ideas find favour when they suit someone's purpose. Rimmer writes forcefully but neither exaggerates his case nor gives needless offence. His subtle irony and turn of phrase are a joy, but are so unusual in economic writing that they may elude some of the many who will undoubtedly want to read this book.

Walter Elkan

Walter Elkan is professor of economics at Brunel University.

BOOKS

Textual choices

W. B. Yeats: the poems edited by Richard J. Finneran Macmillan, £16.95 ISBN 0 333 35361 7
A New Commentary on the Poems of W. B. Yeats by A. Norman Jeffares Macmillan, £35.00 ISBN 0 333 35214 9

The Poems is the first volume in a planned Collected Edition of W. B. Yeats's works under the general editorship of Richard J. Finneran and George Mills Harper. I am afraid the project has got off to a doubtful start. There is a good deal of evidence that Yeats wanted to have his poems published in two forms: a popular, one-volume *Collected Poems* and an edition *de luxe* in which the poems would occupy two volumes of a possible seven or, at one stage, eleven. On March 30, 1933, Yeats's publisher Macmillan suggested that the general reader for whom the one-volume *Collected Poems* was intended would like to have his eye caught by the shorter lyrical poems first, before coming upon the long narrative and dramatic works. Yeats thought this a fine idea, and it was the basis of the *Collected Poems* issued on November 28, 1933. But the idea of a splendid edition in several volumes for the eye of history was not abandoned, it was merely postponed for a happier time. In the event, it was never published: the first volume of *The Poems of W. B. Yeats* (1949), chronologically arranged, was the next best thing. From 1949 to 1961 it retained its title. But in 1961 and again in 1966 Curtis Bradford questioned its authority, mainly on the evidence of a table of contents in Yeats's handwriting, for an untitled volume.

Richard J. Finneran, in preparing an edition designed to be as close as possible to the last word, has set aside the 1949 edition and gone back to 1933. He has taken 1933 as his copy-text, subject to certain readings which he has changed in the light of later volumes and various manuscripts and typescripts. He has also explained and defended his procedures in his *Editing Yeats's Poems* (1983). His main contention in that book is that after Yeats's death on January 25, 1939, his editor at Macmillan—Thomas Mork—with Mrs Yeats's approval and often at her suggestion, altered Yeats's preferred arrangement of the poems and tidied up his punctuation. Further, as Professor Finneran puts it: "There was

essentially no attempt to verify the poems by examining the manuscripts; rather, they were simply regularized, more or less according to the rules of prose". The new edition is designed, in effect, to start from 1933 and remove from the record Mark's well-meaning interventions.

However, it is impossible to rely upon the new edition. It is technically disastrous. On page 138 the title and the first two lines of "The Living Beauty" have been lost. On page 196 a line of "The Tower" has been repeated, and thereafter the stanza-divisions for the next nine stanzas are wrong. These are house-disasters, which presumably can be put right in a second printing. But I can't place much confidence in Professor Finneran's texts. Take, for instance, "A Bronze Head", which he has considered in detail in *Editing Yeats's Poems*. In the new edition he gives the first line as: "Here at right of entrance this bronze head," instead of the normal version, "Here at right of the entrance this bronze head." No printed text has the new reading; nor has Professor Finneran listed the omission of "the" in the ostensibly full list of variants he has given on page 86 of *Editing Yeats's Poems*. As copy-text for the poem, he has used the National Library of Ireland manuscripts and typescripts catalogued as 13593(37). At none of the documents in 13593(37) does the omission of "the" appear. The new reading may just be a mistake, or another printing error; but it is repeated in the index to first lines on page 736.

Professor Finneran has also emended line 10 of "A Bronze Head", but on far stronger grounds. All the printed texts have: "Yet a most gentle woman; who can tell". He has changed "woman" to "woman's", referring to "form" two lines back. But one of Yeats's manuscripts and a carbon typescript have "woman's", and another carbon typescript which Yeats pronounced "correct" has it. It is a complication that this typescript deletes the "s" in pencil, but Professor Finneran is probably right in thinking the pencilling Mrs Yeats's.

There are several other good emendations. In "Three Songs to the One Bayard", a famous, a brilliant figure" becomes, for good reason, "A famous, brilliant figure". Professor Finneran has Yeats's manuscript authority for changing an awkward line to the same poem: "And yet who knows what's yet to come?", to the much better: "And no one knows what's yet to come".

Some of Professor Finneran's decisions will cause a flurry. "Three Songs to the Same Tune" was included in the 1949 book and has stayed in the *Collected Poems* till now: it is separated by about fifty pages from its revised version, "Three Marching Songs". It was Mrs Yeats's decision to include both poems, and Mark accepted it. But Professor Finneran

believes that Yeats intended the revised version to replace "Three Songs to the Same Tune". The only evidence for this view is that Yeats started writing the revised version directly in the corresponding pages of his copy of *A Full Moon in March*. The evidence seems weak to me. Even if Yeats intended to write three better songs, the two versions amount to quite different poems. Mrs Yeats was right to print both. In the new edition "Three Songs to the Same Tune" is relegated to the back of the book, among a batch of 125 "Additional Poems" including "Why should not Old Men be Mad?", "Crazy Jane on the Mountain", and "A Statesman's Holiday".

It may be the case that there are far more good decisions than bad ones in Professor Finneran's edition, but in a work of this scale and ambition short of perfection is acceptable. I suspect that quite a number of errors will turn up in this edition, and that later printings will have to do a lot of repair-work.

Professor Jeffares's *New Commentary* is a much revised and enlarged version of his *Commentary* (1968), and very fine it is, too. He is in serious disagreement with Professor Finneran's decision to start with 1933 and retain the separation of lyrical poems from the longer ones. He thinks the new edition should have obeyed what he regards as Yeats's — and indeed Harold Macmillan's — wishes for the edition *de luxe*: a chronological arrangement which would give the reader, he maintains, "a more effective picture of Yeats's development as a poet". Professor Jeffares may feel that he hasn't said so — that Yeats's readers don't now have to be wooed, or protected from the experience of meeting "The Wanderings of Oisín" as soon as they open the book. I agree with him. Professor Finneran's new edition, though reasonably priced, is too big to attract the casual reader: the more professional readers who are likely to use it would probably prefer to see Yeats's development acknowledged by a chronological arrangement.

Professor Jeffares's commentary is quite splendid: it glosses — often by quoting relevant passages from Yeats's prose — virtually every reference that is likely to be a problem. Here and there I would like even more glossing than he gives. On "Conjunctions", for instance, I would want to quote a bit from *The Completed Symbol* section of *A Vision*, and refer to the later passage in the poem where two of the four lines of the poem are given again. I would also quote a passage about Saturn and Jupiter from G. R. S. Mead's *The Doctrine of the Subtle Body in Western Tradition* (1919). But the commentary as it stands is superb.

Denis Donoghue

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A statue in the grounds of Stourhead, Wiltshire, included in Brandt's photographic study *Literary Britain* (Victoria and Albert Publications, £12.95) on the strength of its associations with Alexander Pope.

Poetic visions

Rimbaud: visions and habitations by Edward J. Ahearn University of California Press, £25.00 ISBN 0 520 04591 2

Rimbaud is an astonishing poet, not simply because he was scarcely more than a child when he wrote poetry of such major importance, but because the value of human existence is affirmed through the very terms of his rebellious transfiguration of the "real". How exciting to be reminded of this by a study which sets Rimbaud's contribution to modern literature in a frame of comparative reference itself intricate and intriguing in its breadth of inquiry: the "childhood" poems of Blake, Hölderlin and Wordsworth, the visionary-ecstatic writings of Coleridge, Yeats and Nietzsche, and the social thinking of Engels and Marx.

A project of this nature raises automatic questions: that thematic groupings will take place at the expense of interest in matters of form; that the comparative focus will dissolve a sense of Rimbaud's uniqueness; that the activity and specifically poetic nature

of this extraordinary bid to "change life" will take second place to a discussion of altered states of consciousness in themselves. Yet up and away most such worries — Rimbaud's life of motion — as the successive layers of analysis unfold. It is the projective nature of the creative imagination itself which transforms loss of childhood into the source of new hope, "linguistic" categories being blown down for the reader by the subterranean beauty of the poems with their poignant and curiously synonymous orchestration of innocence and transcendence, perseverance and discontinuity, achievement and loss. In his handling of temporally Rimbaud remains unique; refusing, for all his ferocious attack on the repressiveness of western rationalism, to devalue the structuring activities of the mind with its capacity to express, to share and to know.

Nor is the violent aesthetic strangeness of these poems separable from concern with historical process. E. Ahearn's conviction that this poetic project should be the end of the process of history (deconstruction of the process of history (habitations) as well as visions) takes its cue from Rimbaud's powerful awareness that individual consciousness is to be pursued in structures always wider than the domain of the personal subject or "self". Indeed it is the concept of a continuum of different states of consciousness which could be seen as the mainspring of this study with its debt to (re)place Rimbaud's achievement in a humanistic setting where the notion of integration without loss of discontinuity is of primary concern. The whole is a projective question of the autonomy of language and Rimbaud was himself conscious of the linguistic nature of his "hyperreal" production — is accordingly summarized in terms of transmutational (concrete and imaginative) poetic artifact, together with a model synopsis of the poetic exploration encouraged by Coleridge from a post-Kantian point of view.

Readers will have differing reactions to the conceptual assumptions which underlie this study and the degree to which it may be thought to be post-structuralist in thought. But that as it may, it is a work teeming with suggestions concerning the contextual integration of individual poems and one to be recommended strongly to a wide readership in the field of modern European literature (all quotations are accompanied by English translations). In particular to the student who still needs convincing that lyrical poetry is not synonymous with the "art can be" and that the poetic act can be a means of investigating the most fundamental of human concerns. There is nothing escapist about these presences of joy.

Christine M. Crow

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W. W. Robson

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BOOKS

Eater and eaten

Herbivory: the dynamics of animal-plant interactions by M. J. Crawley Blackwell Scientific, £27.50 ISBN 0 632 00808 3

Insects on Plants: community patterns and mechanisms by D. R. Strong, J. H. Lawton and Richard Southwood Blackwell Scientific, £22.00 and £11.80 ISBN 0 632 00907 1 and 00909 8
Insect Herbivory by I. D. Hodkinson and M. K. Hughes Chapman & Hall, £2.75 ISBN 0 412 23870 5

The interaction between herbivores and their food plants is a burgeoning area of research in ecology. Almost any biologist can contribute because the interactions between herbivores and plants involve the chemistry of plants and the behaviour of animals, and the population dynamics, physiology, evolution and geography of both eater and eaten.

Michael Crawley's main concern is the population dynamics of plants and the animals which eat them — an area not well covered by other books. However, even though the subject-matter may seem to be confined to particular kinds of interactions, the implications for all other trophic levels must also be considered, as herbivore numbers are influenced by predators and the behaviour of animals, as well as by food supply. The book is in fact more a reference work than a textbook: there are over 1,000 entries in the bibliography and 3,500 entries in the index, together comprising 20 per cent of the book.

Chapter one introduces the various types of herbivory and their consequences for plants and ecosystems. Chapter two reviews plant population biology. As this is a large subject in itself, Crawley has attempted to impose some order by proposing six generalizations that would "form the core of plant demographic theory". The choice of these six, however, does seem rather arbitrary, and the organization of what follows bears no systematic relation to them. Basic subjects such as self-thinning are treated too briefly to be of much use to the unskilled reader but there is a good section on compensatory growth responses in plants that have been attacked. There are no clear rules here about how much compensation occurs in different situations, as species respond differently.

A dramatic example of compensation is shown by ragwort. The caterpillars of cinnabar moth are capable of completely defoliating plants but they pupate in early summer leaving ragwort time to regenerate from its rootstock so successfully that even though cinnabar moth numbers may be limited by food shortage, plant numbers are not limited by herbivory.

Although "there is no formal difference of approach between studies of plant and animal population dynamics", animals are treated separately in the third chapter. This time, no "core" principles are singled out. It is a pity, however, that concepts like density dependence and refuges from predation are not more fully explained in either plant or animal sections of the book, as these are crucial to arguments about the stability of plant-herbivore interactions — a theme running throughout the book. Something like the unified approach to herbivory and predation used by Michael Begon and Martin Mortimer (*Population Ecology*, Blackwell Scientific, 1981) would have been appropriate. It is strange that this kind of scheme was not used to introduce basic concepts since in chapter four the formal similarities between predation and herbivory allow Crawley to adapt population models originally devised for predator-prey interactions to describe interactions between animals and plants. If any useful population models are to be constructed, we need to know what limits the numbers of organisms in different populations. Although hard data are difficult to come by, the point is that this world of green suggests that herbivore numbers as a whole

cannot be limited by food supply and that therefore their populations must be limited by predation and parasitism. This point seems to have held true for insect herbivores but is more doubtful for vertebrates.

Exceptions which prove the rule are found in examples of the biological control of weeds by herbivorous insects. These insects are successful in reducing and limiting the numbers of their food plants when introduced into foreign territory which is free of their predators and parasites. In 36 of the 43 pages he devotes to models of plant-herbivore dynamics, Crawley uses Lotka-Volterra based equations developed by Michael Hassell, Roy Anderson and Robert May (among others) to describe predator-prey interactions. This seems an inappropriate choice for Crawley's purpose because, unlike true predators, most herbivores are not food-limited. These models are only doubtfully appropriate for the relatively few monophagous insect herbivores and perhaps for vertebrate grazers. No Ymer's graphical grazing model could have been used more simply for the latter.

Chapter five on community dynamics is full of interesting information on how herbivory influences plant and animal community structure. Overall, *Herbivory* is packed with useful in-

formation which despite the drawbacks mentioned above is critically evaluated and will be useful to lecturers, graduate students and researchers.

Insects on Plants is an interesting contrast to Crawley's approach: more modest in subject matter, its three authors have chosen a part of the subject (roughly Crawley's chapter five) where some sound generalizations are possible. The book is clearly written, excellently illustrated and coherently structured. Its authors address the question of what determines the number and relative abundance of herbivorous insects attacking a plant species and conclude that vertical interactions (plant-herbivore-predator) are more important than horizontal ones (herbivore-herbivore competition) because most herbivorous insect populations occur at too low a density to deplete their food supply and cause competition for food. The main determinants of insect numbers on a plant species are the plant's geographical abundance, the range of habitat types it occupies, and its structural complexity.

After considering the dynamics of insects colonizing plants through time and the experimental data on interactions between insects and between insects and plants, a chapter on plant-

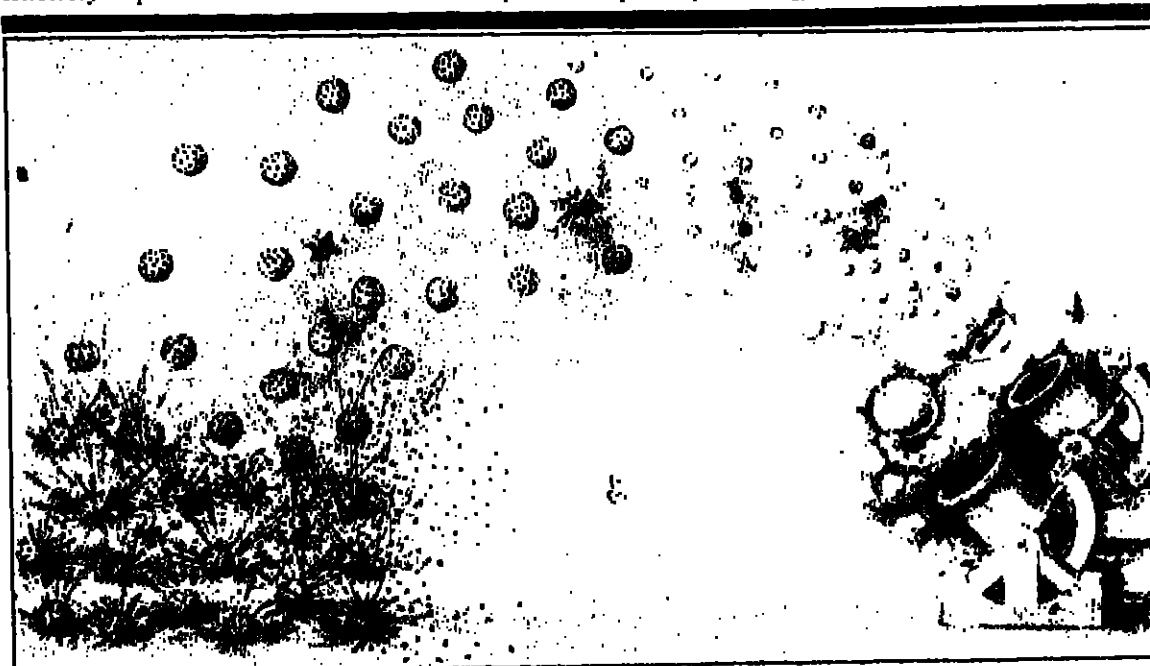
insect coevolution concludes that the rarity of individual insect species on plants (though total insect faunas may be large) lowers the likelihood that plants will evolve defences against particular insects or that complex coevolutionary adaptations will occur. Most plant defences are general in their action against many insect species, although there are some striking exceptions.

Insect Herbivory, a brief and inexpensive introduction to the subject, successfully conveys the essentials. Plants are dealt with both as food for insects and as partners in an interaction which alters their yield and fitness. There is also a consideration of the impact of insect herbivory in natural ecosystems. Insects usually take less than 10 per cent of the available net primary production.

Insect herbivory in agriculture and biological control get such brief mention, however, that not even basic references on these subjects are cited. This is a pity in an otherwise comprehensive and well-referenced little book.

Jonathan Silvertown

Jonathan Silvertown is lecturer in biology at the Open University.



Mortars with explosive shells. From Leonardo da Vinci's *Elements of the Science of Man*, an attempt by Kenneth D. Keele to integrate Leonardo's *Elements of Mechanics* with his investigations on the movements of man and animals and with his anatomical drawings, published by Academic Press at £69.50.

Materials guide

An Encyclopedia of Metallurgy and Materials by C. R. Tittle Metals Society: Macdonald & Evans, £65.00 ISBN 0 7121 0571 9

An understanding of materials behaviour is of fundamental importance in underpinning advances in technology. The freedom an engineer has in designing and manufacturing anything, from a simple tool or domestic utensil to a complex engineering structure and equipment, is limited in the final analysis by the materials he can use. The importance of making the right decision on the selection of materials is highlighted by the dramatic and sometimes tragic disasters that occur from time to time, such as the Alexander Kelland rig disaster. At a more mundane level, costly breakdowns of equipment due to material failures are an everyday occurrence in industry. These can often be avoided and they reflect a general lack of awareness of the selection and use of materials in engineering components and structures, even by specialist engineers.

The subject of metallurgy has long been established as a discipline in its own right. Although it draws extensively on physics and chemistry for its scientific basis, while at the same time interfacing with engineering, it is unique to the subject. The past 30 years have seen a further rapid expansion of the subject into new generations of non-metallic materials, which have had a major impact on engineering design and manufacture. For example, plastics and composite materials

are now used in a wide range of articles, from domestic appliances and cars to space satellites. The spectacular advances in electronic systems have been a useful addition. The opening section, however, consisting only of tables (though these do contain a considerable amount of useful data and information related to materials) makes a rather dry introduction to the book. More importantly, the various definitions and descriptions of processes and mechanisms would have benefited from the greater use of illustrations, and many of the diagrams that are used could have been presented with greater clarity. The complete absence of micrographs was particularly disappointing, in view of the underlying importance of structure-property relationships to an understanding of metallurgy and materials science. For example, the rather brief description of the different microstructures that occur in steels, such as pearlite and martensite, would have been considerably enhanced by optical micrographs of these structures.

To compile an encyclopedia on any subject, and particularly one as diverse as metallurgy and materials, is an extremely difficult task for one person to undertake. Although Tittle has achieved only qualified success in meeting his objectives, he has performed a valuable service in drawing together a wide range of information in a single volume. The book will be of value to non-specialists, particularly those in government and industry who are concerned with technical decisions involving materials issues. It may also provide a useful initial reference source for professional scientists and engineers, including metallurgists and materials scientists who require guidance outside their immediate field of expertise.

B. L. Eyre
B. L. Eyre is professor of materials science at the University of Liverpool.

Divorced from iron

Superconducting Rotating Electrical Machines by J. R. Bumby Clarendon Press: Oxford University Press, £25.00 ISBN 0 19 859329 9

For the past 20 years the opportunity to alter radically the topology of machines has fuelled the imagination of designers throughout the world. Imagine the delight of designers confronted with a conductor that dissipates no heat when current is passed through it — a superconductor. By comparison with conventional machines, superconductors afford opportunities to increase the magnetic field produced by two or three times; to design machines without any iron that can produce greater power for a given size (volume) accompanied by a remarkable weight saving; and to abandon the constraint of an intimate marriage with iron.

In practice, however, there are a few snags. Besides other complex constraints superconductors must be immersed in liquid helium (4 degrees above absolute zero) so complex cooling and refrigeration circuits are necessary. And ensuring the health of the superconductor throughout the operating cycle influences all aspects of machine design. Superconductors are therefore only likely to be commercially viable in the largest machines (for example, power station generators) or in situations in which weight is a critical factor (for example, low-speed ship propulsion drives).

Conventional machines are limited by the restricted current that can be pushed through a copper winding without it overheating. In general, the magnetic field thus produced is hopelessly inadequate without the boost given by encasing the windings in iron (specialized magnetic steels). By gradual refinement of thermal design, working levels were raised in the largest machines. The rotors of power station generators, however, are as large as it is practicable to build: it is not possible to extend them either in length or in diameter without danger of disintegration in service. Scope for further development is now limited, suggesting that conventional technology has nearly reached its limit, so that the development of the high-field superconductor 20 years ago was indeed timely.

A nucleus of sound ideas continues to be intensively explored and are now being realized throughout the world. As Dr Bumby's concise and comprehensive book refers extensively to first-hand research material, it is therefore an indispensable reference for established machine designers or conversant graduate engineers. After a brief review of applications, Bumby then describes clearly the novel problems to be addressed when using superconductors in machine design.

Chapter three is devoted to large homopolar direct-current machines used, for example, in ship propulsion systems requiring high-powered low-speed drives. The particular problem of these machines, armature current collection, being treated thoroughly. The remaining four chapters are devoted to the superconducting rotating-current generator. In contrast to conventional design, the fundamental analysis is derived from an iron-less field solution — yielding, however, results in familiar forms. Furthermore, of the many stimulating pieces of analysis in the book, Bumby shows in particular how conventional iron-based and copper-based machines can in fact be treated as a special case of the general problem of iron-free machines.

Written by an engineer for engineers, this book is both rigorous in its analysis and practical in its application. Although it does not address the purely mechanical or thermal design process, for which another book would be required, the appropriate interactions are clearly indicated. Conversant engineers will find it indispensable, but renders new to the subject might have appreciated the inclusion of additional background information.

Bruce Hassall

Bruce Hassall is lecturer in electrical and electronic engineering at the University of Leeds.

Social thought

The Teaching of George Eliot by William Myers Leicester University Press, £16.95 ISBN 0 7185 1236 7
George Eliot and Nineteenth-Century Science: the make-believe of a beginning by Sally Shuttleworth Cambridge University Press, £20.00 ISBN 0 521 25786 7

William Myers's title draws attention to a peculiarity of George Eliot among Victorian novelists. Whereas a title referring to the "teaching" of Dickens or Thackeray, Trollope or Mrs Gaskell, would seem in need of explanation, when applied to George Eliot it does not seem particularly strange. It would be George Eliot's Victorian admirers, either. But Myers's book offers an approach to George Eliot the teacher which they could not have made, since not only does he analyse her thought in a different perspective, but subjects it to critical comparison with the work of other thinkers who, though they lived in the same century as she did, appeal to twentieth-century intellectuals in a way in which she no longer does.

George Eliot, like Matthew Arnold and other Victorian rationalists, represents a relation to Christianity which is

no longer found, and which is not altogether easy to understand. The rationalists had gone beyond Tennyson's "honest doubt" to definite unbelief, yet at the same time they favoured Christianity and felt a nostalgia for it. Unless this is grasped the anomalies and incoherences in their thought cannot be explained. George Eliot at one time had been intellectually dominated by Ludwig Feuerbach. She agreed with him that the essence of Christianity was purely humanistic, and while she did not anticipate the completely secularized version of it now current, with its social welfare and openly agnostic clergy, the presentation of her "good" clergymen (the most of them) points in that direction. At the same time George Eliot preaches an asceticism, an insistence on the virtue of "submersion" for its own sake, an exalted, self-denying altruism which seems to belong to a quite different and much less secular conception of religion. Similarly, she was attracted towards Auguste Comte's positivism, while also feeling its inadequacy to explain much in her experience of the life of the spirit, and of art.

Myers's book is of surpassing excellence in its treatment of these and other problems about the thought of George Eliot. While fully recognizing that much in her background of ideas has dated, and that she would probably not be remembered if she had not been a great novelist (however imperfect) who at her best can do the things that only great novelists can do, he does not leave us with the sense that we have

been inspecting a museum piece. This is partly because of his sympathy with the subject. He sees Marian Evans as struggling with problems which were alive for her, not merely academic and theoretical. And he has had the happy idea of juxtaposing her insights and her more radical ideas expressed by more radical nineteenth-century thinkers, with the effect of mutual critique. Thus on George Eliot's religious views he invokes Marx in the *Theses on Feuerbach*, on her moral views Nietzsche (who hated George Eliot's ethics) in the *Genealogy of Morals*, and on her view of the violent human passions Freud in *Civilization and its Discontents*. Other parts of his study examine her relations to feminism, and her critique of nationalism (in her very original and striking vision of Judaism), with the same insight and sympathy. The book is too richly packed to be summarized. It should become the standard work on the subject for our time, supplementing the more centrally literary criticism which has contributed so much since the 1940s.

Sally Shuttleworth's book is also of real value, though it has less range and is written with less sparkle. She dwells much on the influence of Victorian scientific theory on George Eliot, making the good point that critics like Leslie Stephen and Henry James, who deprecated her philosophical and scientific views, were themselves more deeply under the sway of Victorian science than they realized. George Eliot deployed her ideas about scientific method, about social and psychological

life, about physiology, about sociology, about more openly. Sally Shuttleworth argues that George Eliot became more radical, questioning, "modern" in her later work, and this appears, not only in her explicit rationalism, but in the very texture of her work. Images of conflict replace images of a static or a harmonious world.

I have learned much from both these books, but I must admit that neither of them has very much changed my view of George Eliot as a novelist, moralist, or casual of her time. It is very hard to emphasize her anticipations of twentieth-century ideas. But I doubt whether she was really a "social thinker" as that is understood today. This was an advantage to her, since she has remained alive as a writer in a way in which Charles Kingsley or Charles Reade, whose books are full of "social thought", have not. The problem of the literary critic with George Eliot is that her novels are full of dead wood — but certainly Felix Holt, *Romola*, and *Daniel Deronda*. The value of books like those of Myers and Shuttleworth is that while they do not make such novels seem good as a whole — nothing could do that — they go some way to help us to understand what went wrong with them.

W. W. Robson

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BOOKS

PSYCHOLOGY

Learning theories

Learning Theory and Behaviour Modification
by Stephen Walker
Methuen, £2.95
ISBN 0 416 33810 0

Arguably the most widely adopted and most effective group of psychotherapies in use today are those which are loosely labelled the behavioural therapies. In the early days of their development, those therapies devised were fairly rigidly tied to basic principles of learning and conditioning - notably Pavlovian conditioning - while in the 1960s the Skinnerian "boom" extended learning principles from merely providing the rules by which to create individual psychotherapeutic techniques to a general *modus operandi* for analysing and treating behavioural problems.

Nowadays, the notions of behaviour therapy and behaviour modification, have been stretched to cover a plethora of techniques and approaches, many of which would have been anathema to more traditional behaviourists. Indeed, it would probably be difficult to find two modern textbooks on clinical psychology which use a category term such as "behaviour modification" in identical ways. However, more than anything else, this lack of consensus reflects the many diverse situations to which learning theory in general has been applied rather than any theoretical disagreement. A consequence of this diversity is that textbooks on the subject - and in

particular introductory texts - have tended to adopt a "cookbook" format, followed by summaries of the relative efficiency and external validity of each type of therapy. Internal validity is frequently neglected as are the theoretical roots from which these techniques have sprung.

With all this in mind, it is encouraging to find a book whose title implies that it is going to relate behaviour modification to learning principles. If therapies work they must work for particular reasons, but the practising clinical psychologist, to be fair, is rarely interested in those reasons, as his aim is primarily to alleviate psychological suffering. So a book entitled *Learning Theory and Behaviour Modification* immediately raises some academic expectations about the questions it is to ask: Do behaviour therapies work because they contain conditioning principles? Are behaviour modification techniques successful only with learned behaviour problems? How has our knowledge of learning mechanisms developed recently? How can this knowledge be applied? And so on. Walker's book, a contribution to Methuen's "New Essential Psychology" series, approaches such questions primarily from an historical point of view, tracing the link between learning theorists and behaviour therapists from J. B. Watson's "Little Albert" onwards.

The first five chapters deal with learning principles, both Pavlovian and instrumental, and describe various important phenomena. Written in a clear, readable way, these five chapters avoid the technical language which frequently sends undergraduates scuttling towards the "softer" areas of the subject. For this reason alone, it would be worth ensuring that newcomers read the book before they encounter a number of more substantial tomes on learning theory. The second half of the book deals with the various applications of learning principles to therapeutic situations, and covers the influences of such people as J. B. Watson, E. L. Thorndike, Joseph Wolpe, H. J. Eysenck and B. F.

Skinner. Here, Walker's fluent style continues to make the book easy to read.

My one complaint, however, is in terms of our current theoretical knowledge of both learning theory and behaviour therapies, a book entitled *Learning Theory and Behaviour Modification* should offer much more than a tantalizing glimpse of a number of important developments - leaving the arguable impression that the theoretical links between learning theory and behaviour therapies are still robust and permanent. There is little discussion here about how the currently popular cognitive behaviour therapies relate to conditioning theory (if in real terms they do at all); and it would have been interesting to read about the evidence as to whether behaviour therapists work because they contain learning principles. Also, there is nothing in the book to indicate the major developments that have taken place in contemporary conditioning theory during the past decade or so, nor is there much analysis of animal learning.

Although it might be argued that these new developments have not yet filtered through to the applied field, a book that is half about theory and half about applying that theory, its current state of our knowledge of learning deserves fuller treatment. Besides, as books such as this should point the directions in which new knowledge can be applied, it would have been interesting to see what Walker has to say on this.

Such criticisms, however, could be levelled at nearly all the currently available books on this topic. Walker's book, however, is distinguished by its clarity and readability. Despite some misgivings about its academic content, it is one that I would recommend as a painless introduction to the subject.

Graham Davey

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A need for rigour

The Logic of Perception

by Irvin Rock

MIT Press, £20.25

ISBN 0 262 18109 6

Perception

by Irvin Rock

Scientific American Library;

Freeman, £14.50

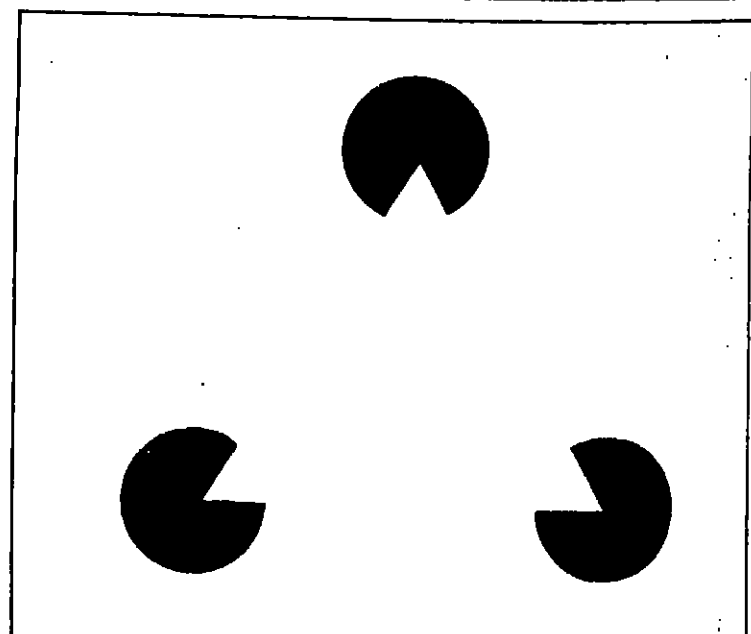
ISBN 0 7167 5001 5

On encountering the word "theory" in books on psychology, strong men quail - if they have any sense. Its occurrence is usually followed by a series of grandiose but vacuous statements whose relation to the phenomenon to be explained is opaque.

In the introductory chapter of *The Logic of Perception*, Irvin Rock menacingly outlines his own theory and threatens "to develop and support it in the remainder of the book". In fact the theory in question, as he admits, goes back to Helmholtz and views visual perception as the outcome of a process of unconscious inference, problem solving and the building of structural descriptions of the external world. The theory, or rather approach, is in fact already accepted by most workers in visual perception, except for a refractory core of die-hard, mainly to be found in the United States, who still subscribe to Gestalt or Gibsonian doctrines.

The acknowledgment that perception is the result of a process of computation does not, of course, reveal what the computations are. Rock's originality lies in applying this phenomena, many of which he has investigated himself, for he is a highly ingenious and prolific experimenter. The outcome is an interesting and important book.

Rock takes a series of phenomena, like motion perception, illusory contours, size and brightness constancy, and shows that they can be understood in terms of the knowledge applied by the visual system to the interpretation of the retinal image. Here are two examples. The first is the anisotropic effect. If a line drawing is observed while being drawn behind a narrow slit, the whole drawing can appear to be shifting to the right of the observer, although the lines comprising



ing it merely move up and down in the slit and only a small part of the drawing is seen at any one time. The effect is abolished if the card in which the slit is cut is too narrow to occlude the whole drawing or if the visible parts of the drawing are luminous and are exposed in a dark room so that the slit is invisible. For the effect to occur, then, there must be evidence of a slit and evidence that the drawing is occluded except for the part moving behind the slit. Again, if a line repeatedly tilts while changing its length, it is usually seen as rotating in the third dimension while remaining constant in length. If, however, the line is viewed through an opening and the changes in length are caused by the ends of the line being obscured by the edges of the opening, no three-dimensional rotation is seen. These examples can be used to illustrate what is perhaps Rock's most interesting and original insight. He maintains that in interpreting a display, the visual system attempts to explain seemingly unrelated co-occurring stimulus variations on the basis of a common cause. Hence, the number of illusory figures that would account for the nick in the circles in the illustration, why we choose the triangle if it is not in some sense the simplest hypothesis?

It is of interest to contrast Rock's approach with that of workers in artificial intelligence (AI). It is in fact largely complementary, as few of Rock's examples (except motion perception) have been dealt with by the AI fraternity. The phenomena with which Rock deals have largely been discovered by the visual system, demonstrated that the visual system continued on facing page

BOOKS

PSYCHOLOGY

Talk systems

Children's Talk
by Catherine Garvey
Fontana, £2.95
ISBN 0 00 636594 9

It is important to be clear that this is a book about talk and its development and not, except indirectly, about the acquisition of linguistic systems. Garvey makes this apparent early in the book when she explicitly contrasts language acquisition and the ontogenesis of the activity of talking, and states that it is the latter with which she is concerned. It seems appropriate to identify talk with language behaviour, and because of this emphasis, a reader familiar with the research carried out during the past 20 years will find only occasional points of contact with the material in Garvey's book. Why is this so?

It is now widely recognized that language behaviour is the result of a complex interaction of a number of cognitive systems, of which the linguistic system is only one. Alongside it, interacting with it in ways which are not understood at all, are a system of general conceptual knowledge, a system in which information about social relationships is encoded, and, perhaps, several others. The traditional language acquisition research has been to attempt to infer characteristics of the linguistic system from the child's spontaneous language behaviour or his abilities to comprehend linguistic materials in experimental contexts. Such inferences are necessarily hazardous, given that the behaviour has a complex etiology; indeed, the unsatisfactory state of theorizing in this area can largely be attributed to this fact.

Garvey's task is to focus her attention on the child's linguistic behaviour as such, with particular emphasis on those developmental trends which can be loosely grounded in a growing social awareness. The result is a clearly written book which has a good deal of charm but which contains little by way of analysis and is unlikely to satisfy anyone who advocates precision in theoretical speculation.

Unfortunately, the writing in *The Logic of Perception* is often ugly and usually cumbersome so that the reader has to work unnecessarily hard. It is difficult to believe that *Perception* was written by the same hand. It is a clear and terse introduction to the subject which sets out in an elementary way the same thesis as the other book. The illustrations are helpful and many of them are delightful. Apart from the tedious chapter on those tedious geometrical illusions, it can be very strongly recommended as a guide to anyone wanting to be introduced to the psychological approach to visual perception.

Both books have one or two nagging faults. Rock seems ignorant of much work conducted outside North America. He argues that motion parallax will not be a cue to depth, presumably in ignorance of the series of wholly convincing experiments on this topic undertaken by Brian Rogers in St Andrews. And he spends too much time taking Gestalt and Gibsonian theorizing seriously. They could both have been dispatched in a few lines. American psychologists cannot resist paying attention to the man who shouts the loudest, whether it be J. J. Gibson or B. F. Skinner, even when he has nothing to say.

Despite these faults, *The Logic of Perception* is much the most interesting book on the subject to be produced by a psychologist in recent years. It should be read not merely by psychologists, but by anyone interested in the explanation of all chemical compounds will be in terms of atoms. It is time psychologists ceased to pay obeisance to neurophysiology and realized that to explain the mind one must take account of the relationship between it and the external world and that the explanatory concepts needed cannot be derived from neurophysiology.



From the second edition of Ruth L. Auld's *Children's Cognitive Development*, published by Oxford University Press at £4.95.

An introductory chapter contains an abbreviated but lucid account of some of the central concepts in pragmatics, including aspects of speech act theory and views on the cooperative nature of conversation. Some of the difficulties in studying language behaviour are mentioned, though not in the terms mentioned above, and Garvey provides details of the children about whom she cites data and the methodology used in her own work.

Garvey then devotes three chapters to explaining what she sees as the "talk system", the three major components of which are: the "transmission system", concerned with the sending and reception of messages; the "tracking and guidance system", dealing with the establishment of reference and the maintaining of cohesion; and the "facilitation system", which ensures that messages are acceptable and appropriate. I find these constructs unattractive, each of them encompassing a variety of phenomena which do not have anything very clearly in common. For example, for the "transmission system" Garvey describes developmental aspects of a rather shapeless set

of devices for capturing an addressee's attention, opening and closing telephone conversations, "repairing" one's own errors and those of conversational partners, and monitoring turn-taking in conversation.

My disquiet was aroused particularly in connexion with the activity of "repair", where the danger of assigning disparate phenomena to the same superordinate category is readily apparent. Assimilated to the category of "repair" are indications by an addressee that he has not understood all or part of an utterance, questions asking for further specification of a constituent appearing in the speaker's utterance, self-monitored corrections by a speaker, and the strategies speakers may adopt when they attempt to take the same turn in a conversation.

The "tracking and guidance system" includes the manipulation of topic-comment structures, the establishment of reference, deixis, and a variety of cohesive devices including pronominal anaphora and ellipsis. As for the "facilitation system", this is concerned with the differentiation of persons of different status, this differentiation having consequences for the formulation of apologies and the politeness of request forms. For each of these phenomena Garvey cites developmental data, sometimes in an anecdotal fashion and sometimes via quantitative measures, to illustrate the child's use of a particular device. However, where there are clear developmental trends, there is no attempt to offer a detailed model of the factors causally involved in the development.

The final three chapters are devoted to the child's expression of negation, and its use in reasoning and the resolution of verbal conflicts, a taxonomy of situations (for example, teaching, trading) in which language plays a significant part for the child, and a discussion of how children become capable of adopting related registers in their play.

From the points of view of the linguist and cognitive psychologist, the major weakness of the book must be its failure to move beyond a descriptive account and to engage seriously the question of how the child might be developing mental models which include information about interpersonal relationships. However, the wealth of observations and attractive style will probably ensure the book's popularity with social psychologists and educationalists.

Martin Atkinson

Martin Atkinson is lecturer in the department of language and linguistics at the University of Essex.

Planning the next move

Cognitive Development and Education
by Johanna Turner
Methuen, £2.95
ISBN 0 416 33670 1

As a contribution to Methuen's "New Essential Psychology" series, which aims to demonstrate the utility of the traditional distinction between "pure" and "applied" psychology to beginning students by highlighting the relationship between theory, research and practice, this book is only a qualified success.

In an introductory chapter reviewing various approaches to the study of cognitive development, Dr Turner emphasizes the importance of internal mental processes and interactional models, but also indicates the limitations of the behaviourist school, which has largely restricted its concern to the investigation of overt behaviour. She then provides a critical but balanced discussion of cognitive development during infancy (0-2 years), the preschool years (2-5), the first and middle school periods (5-8 and 8-13), and, finally, adolescence to senescence. Although she places considerable emphasis on the work of Piaget, she also pays attention to recent criticisms and modifications of Piagetian theory, turning for example to those writers who assert that the young child is more competent than Piaget suggested and that those who attach weight to the role of early social interaction in cognitive growth.

Although it is not easy to write about the complexities of cognitive development with clarity and without getting entangled in the jargon which characterizes some of the literature, Turner has succeeded in providing a lucid and coherent book which is never dull. She has done her best to enliven the text with examples of actual experiments, while careful to point out how the form and presentation of an experiment can affect its results. Inevitably, in covering the whole life-span in a limited space, the book suffers from the brevity of treatment afforded to many of the aspects of cognitive development discussed. The chapters on the early years and first school period are more substantial and informative than those on the later years, which are highly condensed. However, it is a tribute to Turner's writing that I would

have liked much more from her in all the sections in which discussion was drastically curtailed - for example, those on adolescent development, old age and individual differences.

Although the title implies that a major concern of the book is to show how experimental work on cognitive development can be applied to educational practice, this question is dealt with only sketchily. Indeed, Turner is reluctant to spell out the direct applications of psychologists' understanding of cognitive development to education, and is anxious that any suggestions she makes should be taken as no more than exploratory and tentative. Although such a personal stance is reasonable enough, it is a pity that so little reference is made to the work of others who have made useful contributions to linking cognitive psychology to educational practice - for example, Ausubel, Cronbach and Tomlinson. Further, in view of the considerable literature on the effects of intervention programmes on the cognitive development of young children, the coverage of this topic in less than two pages is inadequate. In her consideration of applications, however, Turner does underline the importance of "meta-cognition", of "knowing about knowing", and advocates that educationalists should help learners to become involved in the process of their own learning by assessing for themselves "how they are using their cognitive processes at any one time so as to plan what their next move should be". More work on this approach to learning would certainly be worthwhile.

Though intended as an introductory text, it may well be that readers with some knowledge of the field will derive more benefit from it. The book then should be useful to students in the early stages of studying psychology. The fact remains that it succeeds more as an informed and enjoyable review of experimental work on cognitive development, which can be highly recommended, than in showing the links between cognitive theory and educational practice.

Maurice Chazan

Maurice Chazan is professor of education at the University College of Swansea.

Blackwell has published a collection of readings as *Early Childhood Development and Education*. Edited by Margaret Donaldson, Robert Grieve and Chris Pratt, the book, which presents a selection of papers in developmental psychology with an editorial commentary, is available at £19.50 and £7.50.

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BOOKS

PSYCHOLOGY

Chimp intentions

The Mind of an Ape

by David Premack

and Ann James Premack

Norton, £11.95 and £6.20

ISBN 0 393 01581 5 and 30160 5

Our fascination with chimpanzees has created heroes like David Premack's Sarah. The popular question, of course, is "Does Sarah have language?"

In their latest book, the Premacks propose that "if a language is viewed as a family of representational systems we rescue it from ethnocentric limitations and include the language of apes within the family." The language of apes, however, is not like human languages. Although chimpanzees show sensitivity to sequence - thus, "Mary give Sarah banana" is distinguished from "Sarah give Mary banana" - they show no evidence of making any syntactic distinctions among their words. And although one or two of the apes would create strings of words, for example, describing their own actions ("Elizabeth cut apple"), the Premacks could find no reason for calling these constructions "sentences" nor find evidence for linguistic creativity.

Even if one declines the Premacks' invitation to extend the definition of language, the research achievement is considerable. Words, for these chimpanzees, are coloured plastic shapes. To represent the concept of an apple, for example, they select a blue triangle, and put it in a sequence of other shapes representing other concepts. Language training forces the chimpanzee to link its responses to abstract representations rather than to objects. In consequence, the word can substi-

tute completely for the object. It has properties beyond those of a name, for a name is only as informative as that of the representation that is stored and associated with it. For the chimpanzees, a blue triangle has all the properties of the apple it stands for, including being red and round. This substitution frees the process of generalization from the actual properties of the physical world. The chimpanzee is then enabled to think about (I can see no reason not to use the term) things like the functions of objects and the consequences of their use. The language-trained chimpanzees would choose a pencil in the presence of an apple covered with writing, ignoring the knife they used for cutting apples outside the training sessions. The chimpanzees who were not language-trained could not do such tasks. Sarah could go further, and was able to indicate that the relationship of a can-opener to a can was the same as that of a key to a lock. Thus, mental predicates like "opens", for which there were no words, had the same properties as relationships like "on", "shape of", "same" and "if-then", for which words existed.

Why should this upgrading of the chimpanzee's mind be possible? The Premacks speculate that for all species there are capacities at a recent stage that can be affected by excess stimulation. But this should not be understood



as support for early forced training of human children. We can produce dramatic changes in the chimpanzee's mental abilities but, in the words of the Premacks, "in order to achieve intelligence, we may require the intervention of a species whose specialisation in intelligence has gone far beyond our own."

One of the most important chapters concerns intentionality. The Premacks asked two main questions: do the chimpanzees have intentions; and do the chimpanzees think that we have intentions? To which the Premacks answer "Yes" and "probably", respectively. They attack the first problem by demonstrating that two of the chimpanzees who were not language-trained could deliberately mislead a trainer they did not like.

The second level of intentionality was studied only with Sarah. She was shown films of a human actor in troubles that ranged from trying to reach fruit to trying to play a game. Sarah was then given a set of photographs including the correct solution (the actor stepping on a socket) and two alternatives. Although this task was beyond most three-year-old children, Sarah managed it. Furthermore, when the actor was an "unfriendly" trainer, Sarah would choose as her solution the picture of a minor catastrophe, like the actor falling off a chair, rather than the "correct" solution.

Despite its qualities, this short, semi-popular book is in a number of ways unnecessarily put together. Assorted topics are sometimes put together and disconcerting variations in detail. Above all, there is no clearly developed line of argument. David Premack produced a more scholarly and much better written book *Intelligence in Ape and Man* in 1976 and another volume is on the way. Anyone seriously interested in Premack's excellent work should read these in preference to this rather inadequate substitute.

John Morton

John Morton is Director of the MRC Cognitive Development Unit, London.

Coded messages

In-Depth Understanding:
a computer model of integrated
processing for narrative
comprehension
by Michael G. Dyer
MIT Press, £31.50
ISBN 0 262 04073 5

"In-depth understanding", as Dyer insists on calling it, is what humans are capable of doing when presented with narratives, but what designers of language-processing computer programs have so far avoided. Presenting a theory of this in-depth understanding and an account of the implementation of that theory in a computer program called Boris, Dyer's book is a significant contribution to the development of machines that can respond to language for a way of providing automated translations and summaries of textual information.

Boris responds to short stories by constructing inferences and intentions, and by recognizing underlying themes. It then answers questions to prove that it has done its job. For example: "Text - 'He felt extremely upset by the incident, and had three drinks at the restaurant. When Paul arrived Richard was fairly drunk. After the food came, Richard spilled a cup of coffee on Paul. Paul seemed very annoyed by this so Richard offered to drive him home for a change of clothes.'"

Q - "What happened at the restaurant?"

A - "Richard spilled coffee on Paul."

Q - "Why did Richard spill the coffee?"

A - "Richard was drunk."

Q - "How did Richard feel when the coffee spilled?"

A - "Richard was unhappy."

Boris works by collecting the salient features of the narrative on a word-by-word basis and by integrating them into thematic abstraction units (TAUs) which resemble Roger Schank's thematic organization packets. The similarity is not surprising,

given that the book is Dyer's PhD thesis and was written in Schank's laboratories.

The integration requires Boris to identify the plans which govern the characters' actions. Features such as resources, efficiency, risk, legitimacy and preconditions are extracted and mapped on to a set of TAUs that are programmed into Boris's memory. TAUs correspond to a planning structure that represents story events in terms of the plan used, its intended advice on how to avoid failure in future. A typical TAU is therefore an adage such as "closing the stable door after the horse has bolted", and Boris can identify the adage appropriate to short stories. This adage was offered when Boris read a story about a graduate student who moved to a better equipped department just as he was offered improved facilities in his home department. Dyer points out that adages often refer to failed expectations due to errors in planning, and much of the thesis concerns the importance of recognizing the theme of narratives.

Boris also has an impressive ability to recognize people's intentions. In the restaurant scene (example above), the program records that Paul has a "pre-serve-comfort" goal violated and that his friend Richard will help him to recover the goal. So, when asked "Why did Richard offer to drive Paul home?", Boris replies "Richard had spilled coffee on Paul's clothes" rather than something like "To get home".

The appropriate answer is selected on the basis of an assessment of the questioner's knowledge, something humans certainly do and something quite novel for a machine.

TAUs also carry expectations about the emotional reactions of the characters described in narratives. After Paul spills the coffee he is expected to feel regretful, so Boris describes him as unhappy even though the story makes no mention of his affective state. Descriptions of emotional responses, however, are not added to the program for the sake of completeness, but are central to the recognition of the TAU most appropriate as a thematic description.

The integrated sentence comprehension device refers not only to the meaning of each word, but also to the meaning of each word in relation to the other words and the overall context.

ates an episodic context as it progresses through the sentence. The content is used to resolve later ambiguity. This is not an exclusively "top-down" or "bottom-up" approach to sentence parsing, but an interactive, in that it uses whatever information can be useful to limit the search (this corresponds to a currently popular view of human reading and reading development). Such correspondences between programming and human behaviour are encouraging, because they provide converging indications that we are getting it right. Another point of convergence is that asking Boris questions can result in a modification of the memory structure derived from the narrative. The same happens when eye-witnesses are asked questions which themselves contain information.

Comprehension is modelled in Dyer's program with the aid of production systems - a form of behaviourism attempting to identify which rules are used on which occasions. However, although Dyer's powerful and provocative thesis will undoubtedly have an impact on psychologists and cognitive scientists, to consider that Boris understands the narratives stretches the bounds of credibility, for it understands in the same way that my typewriter keyboard understands the concept of an alphabet. Boris is an impressive code-user, but it is quite easy to use codes without understanding the message being transmitted, as John Searle has pointed out in this context. In what sense, for example, does Boris understand that Paul is unhappy after spilling coffee? To Boris, this is just another semantic feature to be attached to the actor Paul, so when he talks of "in-depth" understanding Dyer is making a category error.

Without direct experience of the semantic features being processed, by being active in a real world, Boris is no more than a very intelligent code-user. Boris may well be on its way, however, for it is often unclear whether the deductions about stories are Dyer's or Boris's. At times they seem to be indistinguishable.

Geoffrey Underwood

Geoffrey Underwood, *is lecturer in cognitive psychology at the University of Nottingham.*

BOOKS

PSYCHOLOGY

Maximally efficient

Adaptive Behavior and Learning

by J. E. R. Staddon

Cambridge University Press,

£30.00 and £10.95

ISBN 0 521 25699 2 and 27658 6

The psychological study of animal learning has been passing through difficult times. In the 1940s and 1950s, learning theory commanded a central place in psychology. Building on the foundations laid by Pavlov, E. L. Thorndike and J. B. Watson, a number of workers (most notable among them Clark Hull) set about the task of specifying the "principles of behaviour" - laws of behaviour perhaps equivalent in their generality and fundamental importance to the Mendelian laws of genetics.

The failure of their enterprise has produced a reaction against learning theory of a strength proportional to the extravagant claims originally made for it. Those of us still trying to determine more precisely why the rat in the maze (or pigeon in the Skinner box) behaves as it does often find ourselves called upon to justify, in the face of "attacks" from biological psychology and from cognitive psychology, why we should choose to study non-human animals in these ways.

In this book, which is devoted almost exclusively to laboratory studies of animal behaviour, Professor Staddon is uncompromising about their worth. He writes: "Human relevance has usually been a poor guide to fruitful research... if you want to build a scientific understanding of the evolution and meaning of intelligence then you must study animals... the prospect of finding out something of enduring scientific value by studying only people seems to me remote." He is quite happy, however, to compromise with biological and cognitive psychol-

Diverse inputs

Introduction to Psychology:
an integrated approach

by Peter Lloyd, Andrew Mayes,
A. S. R. Manstead, P. R. Meudell
and B. L. Wagner

Fontana, £5.95

ISBN 0 00 636267 2

"What is the justification for bringing out another introductory text in a field that is already crowded?", somewhat disarmingly begins this new introductory text. The answer, apart from the authors' self-proclaimed enthusiasm is that it is good at its business in a "different and valuable" way by adopting "the integrated approach". But what in particular in a discipline with so many arbitrary lines of demarcation, so many descriptive and explanatory facets, is to be integrated?

It could be related to the theme of holism that runs through psychology from perception to psychotherapy, or the "integrated perspective" that psychology and neighbouring disciplines use as part of their mystery-making tactics. In the event, it turns out to be a good deal tamer than this, reducing to an attempt at discussing topics across the conventional disciplinary boundaries of cognitive, developmental, physiological, clinical and social psychology. There is nothing wrong with this - most teaching programmes in psychology tend to advertise their "integrative" objectives, even when these goals are a direct consequence of course structure, logistics and assessment. However, as some topics naturally draw on cross-boundary influences, they resist attempts to modularize them into fragments which then have to be re-integrated. For example, the physiological study of perception, traditionally been informed by physiological considerations, and has always received diverse sideways inputs, including those originating in philosophy and psychology.

This rather timid approach to the business of psychology and its prospects is exemplified by the treatment

of the likely cause of the shock and that this can more plausibly be attributed to a novel stimulus than to a familiar event with a low prior probability of association with shock.

If this account of learning seems uncomfortably glib, this is only in part because of the need to condense Staddon's complex arguments. One other significant feature of the book is the extent to which it concentrates on descriptive (often mathematical) accounts of behaviour with a corresponding neglect of the underlying mechanisms. To specify precisely the rules that govern behaviour (to demonstrate that pigeons behave as if computing how to obtain maximum food for minimum effort; to show that rats behave as if they compute a range of conditional probabilities) is a worthwhile undertaking, but our account of behaviour remains incomplete until we know something about the mechanisms involved. Staddon repeatedly urges the merits of his, hitherto rather neglected, functional approach and upbraids psychologists for undue concern with mechanisms.

Behavioural ecologists have often made the same points. But it is interesting to note that on the occasions when they have set out to determine the mechanisms that underlie their functional analysis they have often turned to the processes of learning - to the processes whereby animals learn to recognize food, for instance, or to those whereby they learn to identify their close relatives. Staddon's decision to apply the same descriptive approach to learning as he applies to the performance produced (in part) by learning deprives both him and other students of behaviour of a proper account of one of the most important explanatory mechanisms.

Finally, I did not find this an easy book to read. Staddon's laudable desire to analyse the phenomena from basic principles often results in his approaching standard topics in most unfamiliar ways. Although such idiosyncrasies may be refreshing for the author's professional colleagues, it seems likely that they will confuse the undergraduates for whom the book is supposedly intended.

Although the experimental work he describes is in the behaviourist tradition, Staddon is quite happy to embrace what he regards as a cognitive approach when, in the second half of the book, he turns to a discussion of learning and memory. He is not afraid to take as a central concept the animal's representation of its world (a notion that would shock a hard-line, radical behaviourist) and he suggests that the rules for changing representations are those of Bayesian inference. For example, consider the well established fact that animals learn less readily about a familiar stimulus than a novel one when that stimulus is associated with some event of consequence, say the delivery of electric shock. Staddon's explanation is that animals

of applied psychology in the final chapter. Although it would seem to be where all the angles do matter, applied psychology is considered somewhat to be out of reach of the integrative exercise. What it actually consists of is not made clear, but its practitioners (clinical, occupational and educational psychologists) are portrayed as faithfully putting into effect the radical insights of academic psychology, the "backbone of the subject". Despite the authors' readiness to present this common virtuality no evidence that psychology is applicable. On the contrary, it concentrates on those little whirlpools in which academics blithely swim, seemingly unaware of real-world problems - giving the impression that this is how things are and should be and that applied psychology is a matter of dull routine. A keener insight into what being a psychologist involves could have been conveyed by explaining some of the skills that are needed, and by a less condescending account of applied psychology than the "epilogue" supplies.

Emphasis is placed on the knowledge that a student of psychology is deemed to need, and the coverage is extensive and up-to-date (some 20 per cent of the references were published during the past five years). However, although the somewhat breathless rush of information communicated by the authors' lively appreciation of the frontiers of psychology, for an introductory text, a more measured approach would have made for a more digestible offering. Because its scope is wide, however, the book will no doubt prove popular, particularly with undergraduates expecting to be challenged by some more advanced material rather than to be intellectually drip-fed. The text is untouched by the integrative sections on further reading, in the form of "annotated bibliographies", are most useful and are the best evidence of successful teamwork, an agreed strategy, and an "integrated approach".

Paul Barber

Paul Barber is lecturer in psychology at Birkbeck College, London.

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BOOKS

PSYCHOLOGY

A battery of tests

Frames of Mind: the theory of multiple intelligences
by Howard Gardner
William Heinemann, £18.00
ISBN 0 434 28245 6

Anyone concerned with the reputation of psychology must have mixed feelings about intelligence tests: more than any other psychological invention, they have had a far greater impact on society. On occasions, however, they have aroused widespread fear, hostility and even contempt. Although there are many reasons for these negative feelings – some a great deal less rational than others – most of the difficulties encountered by these tests can be traced back to the uneasy relationship that exists between their practical value and attempts to give them some theoretical meaning.

It is not always understood that intelligence tests were originally devised in order to solve a practical problem. Alfred Binet, an impressive practical man, produced the first successful test in order to help mentally handicapped children. Setting out to find a way of identifying them so that they could be given the right kind of help, he did not bother much with theories about the nature of intelligence. As he had made the simple observation that whatever intelligence it seems to increase during childhood, he tried out a series of simple and often amusing problems on children of different ages in order to find out which were "sensitive" to age – which problems, that is, would be more likely to be answered correctly by older than by younger children. These were the problems which he kept in his test, and for his purposes this turned out to be the right thing to do.

The test was a success in that it did predict how well children learn things at school. It was an immediate help. It made, for example, the business of finding out what is wrong with a child whose progress at school is unusually slow, much easier. Take the all too numerous cases of children whose reading falls well behind that of other children of the same age. It would be near criminal irresponsibility not to give a child like this an intelligence test. He will, of course, need help – but

different kinds of help if he is a normally intelligent child with rather specific difficulties than if his intellectual difficulties are of a much more general kind.

These were practical gains, and one eminently sane tactic would be to leave it at that and not bother with theory at all. However, a child spots what is wrong with the statement "Fred's feet were so big that he had to put his trousers on over his head" is related to how well he does at school. The trouble is that it is very difficult to make a theoretical statement about what is happening when he tackles a problem like this. But the theoretical vacuum created by Binet's test and by the tests of his successors did tempt a number of rash psychologists to try to use them to discover what intelligence is. This entirely vain endeavour was the spur for Howard Gardner's entertaining and interesting book, in which he deals with the question of whether or not there is one central underlying capacity which we can call intelligence.

In the past some have argued for one central factor, others for several. Howard Gardner claims that both groups were wrong, the first because there are in his view many kinds of intelligence and the second because the types of intelligence suggested were, again in his view, wrong. The evidence on which these two traditional schools of thought have based their theories has come almost entirely from rather complex statistical analyses of answers to intelligence tests. Gardner's innovation is to tackle the question with a completely different type of evidence. He uses two kinds of data: one set comes from people with brain damage and the other from prodigies. Both convince him that there are many different kinds of intelligence and that these are relatively independent of each other. Where there are cases of people who are spectacularly good at one specific skill and yet quite ordinary in most other respects, and where too this skill can be destroyed by a comparatively specific injury to the brain, there Gardner argues is a form of intelligence in its own right.

With the help of this two-pronged method, Gardner devotes the bulk of his book to isolating different "intelligences". Logical and mathematical intelligence is one, and in Gardner's view a rather overrated intelligence at that. He is much more enthusiastic about other forms of intelligence which, he considers, have until now been neglected. Music, movement, language, space, and relationships between people, he believes, represent other quite separate ways of being intelligent, and all of them extremely important.

But how separate are they? In the end Gardner admits that they do have important things in common and to that extent are not completely independent. The use of symbols, for example, plays an important and rather similar role in the different types of intelligence that he proposes, and he agrees that it is possible that the experience which a child has with symbols in one sphere of behaviour can affect the way he uses them in another. Gardner's final account of the different types of intelligence and the relationships between them is, therefore, sophisticated and not always easy to grasp. But it is beautifully and enthusiastically presented.

However, although he writes well and convincingly, sometimes his enthusiasm carries him away. He should have confined his invective to theories of intelligence based on intelligence tests. His argument towards the end of the book that intelligence tests reduce the person tested to a single figure on a scrap of paper is quite misleading. Nobody uses them in that way: IQ scores are always put together with other information about the person in question; and in any case these tests are usually divided into several sections and produce several different scores, which are of great value in the hands of a knowledgeable and reasonably sceptical psychologist.

I can see no reason at all for replacing intelligence tests, as Gardner suggests, with an impracticable battery of observations, which would be difficult and time-consuming to carry out systematically. In the end he too seems to confuse theory with practice. Why visit the signs of the theories about tests on the tests themselves?

P. E. Bryant

P. E. Bryant is Watts professor of experimental psychology at the University of Oxford.



Why people smoke

The Psychopharmacology of Smoking
by G. L. Mangan and J. F. Golding
Cambridge University Press, £27.50
ISBN 0 521 25806 5

Never losing sight of the central question of why people smoke, the authors of this scholarly review of research on smoking cover the history of tobacco use, smoking and health, theories of smoking, the pharmacology of nicotine, recruitment to smoking, and prevention and cessation strategies. The range of material covered, as well as the depth and detail of the exposition, is impressive, the authors appearing to discuss the toxicology of cigarette smoke, the pharmacokinetics of nicotine, or the epidemiology of smoking and health.

In their opening chapter on the history of tobacco use, the authors suggest that although tobacco was introduced into Europe in the sixteenth century and has been used ever since in one form or another (pipe, cigars, chewing, snuffing, cigarettes), inhalation of tobacco smoke into the lungs (necessary for rapid and efficient intake of nicotine) only became tolerable early this century when tobacco manufacturers started to produce cigarettes with a relatively mild smoke. Since then, cigarettes have become cheaper, more readily available, and highly popular.

In their discussion of the health risks associated with smoking, the authors show that the evidence is not completely one-sided. For instance, the reductions in death rates for lung cancer and heart disease in British doctors who gave up smoking were partly offset by increases in stress-related causes such as cirrhosis of the liver, suicide, accidents and poisoning. Here, the authors seem to have some sympathy with the view that there are related genetic factors predisposing people to smoke (by way of certain personality characteristics) and to develop lung cancer or heart disease.

The core of the book is a lengthy exposition of the many and various theories that have been proposed to explain why people smoke. With the exception of the psychoanalytic theory that smoking stems from "nipple deprivation" in infancy, virtually all theories of smoking postulate a role for nicotine in maintaining smoking behaviour. Inhaling cigarette smoke is a rapid and efficient way of self-administering nicotine, the numerous and wide-ranging physiological effects of which the authors document in detail. Although the effects of nicotine are not as obvious or as dramatic as those of say amphetamine, or cocaine, or even alcohol, they none the less seem to be highly rewarding.

Stephen Sutton

Stephen Sutton is lecturer in social psychology at the Institute of Psychiatry, London.

BOOKS

PSYCHOLOGY

Watson rides again

Behaviour: an introduction to psychology as a biological science
by Geoffrey Hall
Academic Press, £12.00 and £8.50
ISBN 0 12 195802 2 and 319582 9

Seventy years ago, J. B. Watson published *Behaviour: an introduction to comparative psychology*. Although academic eras do not begin and end neatly, it is often assumed that the school of behaviourism which this book established was dead and buried by about 1965. There have certainly been theoretical changes in psychology since then. Undergraduates on some courses may hear the word "cognition" as often as those in earlier times heard "behaviour" and I had begun wondering recently if the excesses of cognitive theorizing (about whether all images are propositions) might provoke a positivist reaction, rather as the specious conundrums of introspectionism (about whether all thoughts are images) provoked Watson. It is a surprise, however, to find many of Watson's own views re-expressed, apparently untouched by time, in a book billed as a complete introduction to modern biological psychology. Watson began his book with the claim that psychology should be a

branch of natural science, whose goal is the "prediction and control of behaviour", and which "recognizes no dividing line between man and brute". He went on to some admirable textbook material. One chapter on instinct made use of his own field studies with terns, and another had clear accounts of both Darwinian natural selection and the Mendelian laws of heredity. Watson's own theoretical analysis, including his notorious belief that all thought consists of movements of the larynx or tongue, is, however, now very difficult to swallow. More generally, he claimed the brain can do nothing but give outputs in response to inputs, variation being introduced only when reflexes are made more likely by use, or when use of connections between reflexes allows one stimulus to be substituted for another (emotions being glandular reactions linked to new stimuli by the substitution principle). The theme was of course that behaviour is everything, there being no important complexities inside the head.

Hall's book retains several features of Watson's original, albeit with much that is new. It begins by emphasizing that psychology should be a biological science, and that introspection was a mistake. The long chapter on evolution includes ethological work on the instinctive behaviour of birds, related to the modern concerns of ecology and optimal foraging. A chapter on genetics covers Mendel's laws and the IQ issue (with an hereditarian conclusion). Early experience and psychological development are discussed with expertise and verve. Hall concluding that many things which happen early in life, such as sudden and long-lasting psychological changes, may occur later on just as well. Several common errors are avoided in the description of brain anatomy, and there is a well-informed chapter on animal learning. Because the writing is very clear throughout, and genuinely at an introductory level,

all this will be very helpful to undergraduates.

It is less likely, however, that they will be helped by the chapter on "stimuli and responses", which ends with the claim that "the subject matter of the psychologist is ultimately what the organism does (R)" and that "the psychologist's job is to find out what circumstances (S) make the organism do it". This is vintage behaviourism, as purveyed by Watson and later by B. F. Skinner. Hall revives a number of other old-fashioned concepts. He firmly supports the analogy of the brain as a telephone switchboard, argues at length that the principles of the spinal reflex apply to all brain functions and all behaviour, and concludes that "we can accept the essence" of Clark Hull's equation relating behaviour to stimulus-response connections and drive, and thus "salvage the general structure" of Hull's stimulus-response theory. When these views are combined with an endorsement of modern sociobiology, Hall finds that there is nothing special about the human species. As a general rule he says he disregards the species of any animal that is investigated: when it comes to human culture "the behaviour of any individual is determined by the environment", but as "this is as true of the bee as it is of you and me", "there is no necessity for us to adopt a distinctly human psychology infinitely different from that that applicable to other species".

This book seems rather idiosyncratic. It is odd, I think, to say that behaviourism has merely had a bad press and that in fact we are all behaviourists nowadays – a claim that might be disputed by, among others, those psychologists interested in the philosophy of language, existential psychotherapy, artificial intelligence and cognitive neuropsychology. Also, too much is missing. It would not surprise me to examine shortly a paper on biological psychology which contained questions on: functions of sleep; brain rhythms; polygraph recordings; the visual system; regulation of feeding; brain lateralization; sequelae of strokes; and several aspects of brain drugs (for example, anti-anxiety drugs, or dopamine and schizophrenia). Not one of these is properly covered by Hall. There is no mention whatever of brain asymmetries or sleep, and only half a page each on brain chemistry and the visual system (with nothing on dopamine, or different cell types in the visual cortex or retina). Hall is entitled to his own selection of topics. At some point, however, he will have to face up to the fundamental error in Watson's behaviourism. There are important complexities inside the head. Despite the fact that current theories close to the behaviourist tradition now acknowledge their existence as "central representations", these make only a brief and belated appearance, in the chapter on learning.

Stephen Walker

Stephen Walker is lecturer in psychology at Birkbeck College, London.

English as she is spoke

Thought into Speech: the psychology of language
by James Deese
Prentice-Hall, £18.95
ISBN 0 13 919944 6

Psychologists are often accused of deriving complicated laboratory experiments to arrive, at simple, common-sense conclusions. Nobody should accuse James Deese of this, however, since his methods of studying language production are both simple and common sense. Most psychologists of language construct models of how we speak and understand, derive predictions from their models, and test the predictions in experiments. Deese listens to language, then he describes what he hears.

Thought into Speech reports a lengthy project in which Deese and his assistants recorded, transcribed and classified some 25 hours of spontaneous speech. They carried out no laboratory experiments (though there are some simple confirmations of common-sense predictions – for instance, that long, complex sentences are harder to remember than shorter, simpler ones) and made no instrumental measurements (though pauses were measured in a small sample of utterances). Their analysis is descriptive, their descriptions unpretentious. Whereas nineteenth-century scientists had to settle for such research methods by default, Deese embraces them by choice. Claiming that the experimental tradition in psychology is "virtually nothing about how language is processed" and that current work in the psychology of language is as sterile as the study of verbal associations, Deese prefers to return to nineteenth-century methods, importing from the twentieth century only the tape recorder, so that he can listen to the same speech repeatedly. The nineteenth century, of course, did not produce detailed models of how the mind works; and nor does Deese. He has "little confidence in formal models except as kinds of rough guides" to the feelings that psychology's goal of understanding mental processes is "hopelessly unattainable" and that the only prospect of future insight lies with new ways of listening to language.

Anne Cutler

Anne Cutler is a member of the senior scientific staff at the MRC Applied Psychology Unit, Cambridge.

A second edition of Barry Schwartz's *Psychology of Learning and Behaviour* has been published by Norton at £17.95. Two new chapters, one on "Behavior theory and cognition" and one on "Human applications of operant conditioning principles", have been added.

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Further particulars may be obtained from the Registrar, the University, Leeds LS2 9JT, quoting reference number 35/1700, experience and naming three referees, age, qualifications and salary less than £13 July 1984. Applicants from overseas should send the first instance by cable, naming three referees, preferably in United Kingdom.

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13 July 1984.

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3 August 1984.

Enquiries regarding the chair may be addressed to Professor V. T. Buchwald, Dean of the Faculty of Science, or to Professor G. Brown, Head of the School of Mathematics, Post Office Box 1, Kensington, New South Wales, Australia 1512, from whom further information may be obtained regarding present areas of research interest and the role of applied mathematics in the School and the University.

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13 July 1984.

LECTURER IN INORGANIC CHEMISTRY

The lecturer will participate in teaching in the elementary, advanced undergraduate, and postgraduate level. The department has active research groups in organometallic chemistry, inorganic chemistry, analytical and environmental chemistry, crystal structure analysis, vibrational spectroscopy, coordination chemistry, molecular electro-optics. Preference will be given to applicants who have research experience in one or more of these areas. For further information please contact Professor I.C. Freeman in the University (Tel. 042 0060). The appointment will be for a fixed term of three years commencing in or after September 1984. The costs of travel to Sydney by the applicant may be paid by the University, 20 July 1984.

13 July 1984.

LECTURER IN DEPARTMENT OF APPLIED MATHEMATICS

Applications are invited from persons with excellent research and teaching records in any area of Applied Mathematics, but particularly those relevant to the department's interests, which currently include: atmospheric and oceanic sciences, systems, planetary magnetism, quantum mechanics, astronomy. The department has a developing interest in the use of VAX, CYBER and micro-computers in computer-aided instruction.

5 July 1984.

Appointments to tenurable posts are usually preliminary for three years and the University reserves the right not to proceed with any appointment for financial or other reasons.

1983

Universities continued

BRUNEL UNIVERSITY Department of Computer Science - Chair Department of Electrical Engineering and Electronics - Chair

Brunel University is taking the opportunity provided by two vacancies at professorial level to consolidate and focus its Advanced Information Technology activities. The persons appointed to the above positions may be required to undertake a range of duties, but will be expected to give an active co-operative lead to Brunel's AIT programme which involves the departments of Electrical Engineering and Electronics, Computer Science, Psychology and the postgraduate Division of Cybernetics.

Closing date 31 July 1984.
Salaries in the Professorial range, minimum £17,276, (under review), plus £1,186 London Allowance, with USS benefits.
Applications and further particulars may be obtained from the Personnel Secretary, Brunel University, Uxbridge, Middlesex UB8 3PH. Telephone: Uxbridge (0895) 37188 extension 49.
Brunel University is an Equal Opportunity Employer.

Department of Mathematics and Statistics Chair of Mathematics

Applications are invited for the above Chair which will become vacant in September 1984. The person appointed will have an outstanding research record, will have demonstrated abilities in the broad area of Mathematics and will be expected to take a leading part in the research, teaching and managerial activities of the Department. A sympathy with the existing major research activities in Numerical Analysis and Mathematics is essential.

Closing date 6 July 1984.
The Institute was established to investigate and present ideas on tools, equipment and techniques suitable for the people in this developing country to help themselves and to bring together the University community and all other groups in the country working towards this goal.

The Institute is at present located on the campus of the University of Technology and has an office, workshop and a small library. The Institute will work closely with Papua New Guinea in the identification and solution of development problems and will be required to organise the training of students in this area.

The successful applicant will probably be a graduate with a degree in Mathematics and a postgraduate degree and about 10 years postgraduate experience, including a high level of research and a high level of administrative and managerial activities. Third world experience is essential.

Salary: Director Grade I K18,670 per annum. Director Grade II K22,590 per annum (plus 5% approx.). The level of appointment will be determined by the University's Career Progression Scheme.

Initial contract period is for approximately three years. Other benefits include a regular salary increment of 3% per annum, leave for staff members and repatriation after 18 months of service for staff members and repatriation after 6 weeks leave per year. The successful applicant will be required to provide a written statement of his/her research and teaching interests and to provide a written statement of his/her research and teaching interests.

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The Papua New Guinea University of Technology

DIRECTOR OF APPROPRIATE TECHNOLOGY DEVELOPMENT INSTITUTE

A Director is required for the Appropriate Technology Development Institute which is a joint project of the South Pacific Applied Technology Centre Foundation, the University of Technology and the Council of Churches.

The Institute was established to investigate and present ideas on tools, equipment and techniques suitable for the people in this developing country to help themselves and to bring together the University community and all other groups in the country working towards this goal.

The Institute is at present located on the campus of the University of Technology and has an office, workshop and a small library. The Institute will work closely with Papua New Guinea in the identification and solution of development problems and will be required to organise the training of students in this area.

The successful applicant will probably be a graduate with a degree in Mathematics and a postgraduate degree and about 10 years postgraduate experience, including a high level of research and a high level of administrative and managerial activities. Third world experience is essential.

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University of Kent at Canterbury Computing Laboratory

APPLICATIONS PROGRAMMER

Applications are invited for the above position in the Software Division of the Computing Laboratory.

The person appointed will join an active programme of research, with well equipped laboratories. Current work in the area of artificial intelligence, computer graphics, and computer-aided design.

The post will be for a fixed term from 1st July 1984 to 30 September 1984, with salary in the range of £6,310 to £9,180 per annum (under review).

Further particulars and application forms are available from the Academic Secretary, Computing Laboratory, The University of Kent at Canterbury, Canterbury, Kent CT2 7NF. Please quote Reference Number 12/84 for details and closing date for the receipt of applications is 28 June 1984.

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UNIVERSITY OF KENT AT CANTERBURY

Department of Mechanical Engineering

Applications are invited for the following vacancies: (i) PROFESSOR/SENIOR LECTURER IN INDUSTRIAL ENGINEERING

specialising in Information Technology, Manufacturing Applications, Computer Aided Design and Economics. (ii)

PROFESSOR/SENIOR LECTURER IN PRODUCTION ENGINEERING AND MANAGEMENT

specialising in one or more of the Basic Manufacturing Processes, Production Planning, Control, Inventory Control, etc. as well as the following: (iii) SENIOR LECTURER IN MANUFACTURING ENGINEERING

specialising in one or more of the Basic Manufacturing Processes, Production Planning, Control, Inventory Control, etc. as well as the following: (iv) SENIOR LECTURER IN MANUFACTURING ENGINEERING

specialising in one or more of the Basic Manufacturing Processes, Production Planning, Control, Inventory Control, etc. as well as the following: (v) SENIOR LECTURER IN MANUFACTURING ENGINEERING

specialising in one or more of the Basic Manufacturing Processes, Production Planning, Control, Inventory Control, etc. as well as the following: (vi) SENIOR LECTURER IN MANUFACTURING ENGINEERING

specialising in one or more of the Basic Manufacturing Processes, Production Planning, Control, Inventory Control, etc. as well as the following: (vii) SENIOR LECTURER IN MANUFACTURING ENGINEERING

Polytechnics continued

The Polytechnic of Wales

DEPARTMENT OF BUSINESS
AND
ADMINISTRATIVE STUDIESLECTURER GRADE II/
SENIOR LECTURER
IN STATISTICS

Applications are invited for the above post, which will involve teaching on Degree, Professional and BTEC courses.

Applicants should hold a postgraduate qualification, and be equipped to teach quantitative studies to Business and Public Administration students, and to service other Departments of the Polytechnic.

Salary: £7,215-£13,445 per annum (pay awarded pending offer from 1st April 1984).

Application forms and further particulars may be obtained from: The Personnel Office, The Polytechnic of Wales, Penarth Road, Cardiff, CF11 2TL.

Closing date: Thursday, 21st June 1984 (1488)

Newcastle Upon Tyne
Polytechnic
School of Applied Social
ScienceTEMPORARY
LECTURER II IN
SOCIOLOGY AND
SOCIAL
PSYCHOLOGY

Ref no. A30/84

Applications are invited for the post of temporary full-time Lecturer II in Sociology and Social Psychology. The post is for one year from 1 September 1984 to 31 July 1985.

Applicants should be able to teach on a range of courses at both degree and sub-degree level.

Salary: £7,215-£13,445 per annum (pay awarded pending offer from 1st April 1984).

Application forms and further particulars may be obtained from: The Personnel Office, Newcastle Upon Tyne Polytechnic, Ellison Building, Ellison Way, Newcastle Upon Tyne, NE1 7ST. Tel: (0191) 265027.

Closing date for both posts: 22 June 1984.

The Polytechnic is being renamed Newcastle Polytechnic from September 1984 (1488)

Continuing Education

REGIONAL
DEVELOPMENT
AGENTfor Further Education Unit
Bristol

Up to £16,656

As part of the PICKUP (Professional Industrial and Commercial Updating) Programme, the Further Education Unit wishes to appoint an Agent to develop post-experience vocational education in universities, polytechnics and colleges in the South-West region. The PICKUP Programme is now expanding into Local Collaborative Projects involving educational institutions and industry. FE/HE Marketing, and further PICKUP curriculum development.

Applicants should preferably have experience of industry and/or commerce, and of FE/HE - ideally including mid-career vocational education. They must also possess a current driving licence as considerable travel will be necessary. Starting salary will be within the range £12,388-£16,656. This appointment, based at Bristol Polytechnic, will be for a period of two years initially and secondment arrangements will be acceptable.

For detailed information and an application form, to be returned by 15 June 1984, please ring 01-228 6222 ext. 3138. Or write to: The FE/PICKUP Co-ordinator's Office, Room 5/21, Elizabeth House, 39 York Road, London SW1 7PH. It is hoped that the successful candidate will take up post in September 1984. (1490)

BRIGHTON POLYTECHNIC
DEPARTMENT OF
COMMUNITY STUDIESLecturer II
Sociology
(Temporary)

£5,649-£9,735 pa

Applications are invited for a temporary appointment from 1st October 1984 to 30th June 1985 to contribute to the teaching of the Sociology component of the BA (Hons) Social Administration degree course.

The syllabus are particularly focused on the Social Structure of Modern Britain and candidates should have an interest in the application of Sociology to the field of Social Policy Studies. Application forms and further details available from the Personnel Office, Brighton Polytechnic, Mifflin House, Mifflin Road, Brighton BN2 4AT. Closing date: 19th June 1984. (1488)

Preston Polytechnic
School of Organisation
Studies

Re-advertisement

Applications are invited for the post of:

Lecturer II in
ORGANISATIONAL
BEHAVIOUR

Salary: £7,215-£13,445 per annum (pay awarded pending offer from 1st April 1984).

Previous applicants will be re-considered. Ref. AA/112.

School of Economics and Business Studies

Applications are invited for a

TEMPORARY
LECTURER IN
ECONOMICS

for one year from 1 September 1984.

Applicants should be able to teach on a range of courses at both degree and sub-degree level.

Salary: £7,215-£13,445 per annum (pay awarded pending offer from 1st April 1984).

Application forms and further details available from both posts available from the Personnel Office, Preston Polytechnic, Coppin Street, Preston, Lancashire, PR1 2TQ. Tel: (0772) 265027.

Closing date for both posts: 22 June 1984.

The Polytechnic is being renamed Lancaster Polytechnic from September 1984 (1488)

Colleges of Further Education

Strathclyde
Department
of Education
Further Education

All candidates should have relevant industrial or commercial experience where appropriate. Teacher training would be an advantage but training can be given on an in-service basis.

Strathclyde Regional Council - Department of Education
(Re-advertisement)

DESIGN AND PHOTOGRAPHY

Applications are invited for the post as Head of the above large Department in

GLASGOW COLLEGE OF
BUILDING AND PRINTING

A major specialist college located in the city centre. The department's course coverage is across a broad range of visual communication disciplines and includes Interior Design, Photography, Graphic Design and Technical Communications. The post is Grade II; current salary £15,000.

Applicants should have degree or equivalent qualification, professional experience and recognition, and preferably have had high-level academic background. For further particulars and a form of application contact the Principal, GCBP, 60 North Hanover Street, Glasgow G1 2BP. Tel: 041-332 9989. Closing date: 15th June, 1984.

EDWARD MILLER, Director of Education (14003)

Inner London
Education Authority
Paddington College
Paddington Green, London.
Tel: 01-482 4981Department of Biological
SciencePRINCIPAL
LECTURER IN
BIOCHEMISTRY

The person appointed will have responsibility for the coordination and organisation of the Biochemistry Department, providing leadership in curriculum development of biochemistry, particularly in a biomedical and/or biotechnological context. The person should have relevant qualifications, a medical or pharmaceutical interest, considerable teaching experience and proven administrative ability.

The salary is in accordance with the Burmham (F3) Scale of £12,315-£15,715 (inc. £1,500 London allowance).

Application forms and further details may be obtained from the Personnel Office, Inner London Education Authority, 15th Floor, 15 Abchurch Lane, London EC4N 3DF. Tel: (0770) 265027.

Closing date for both posts: 22 June 1984.

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Colchester Institute
required as soon as possible
PRINCIPAL LECTURER
In Hotel and Catering Studies
Salary (under review):
Principal Lecturer £12,519-
£13,938 (bar) - £15,744 per annum.

The Institute offers Craft, Diploma and Higher Diploma Courses in this field. The applicant will assist the Head of School in organising and developing its work and particularly in teaching the degree in Hospitality Studies.

Well qualified candidates should have significant experience both in the industry and in Catering Education.

Further particulars and application forms available from: The Director, Colchester Institute, Sheepen Road, Colchester, Essex CO3 3LL (Telephone 0206 570271 Ex 85).

Closing Date: Monday, 25th June, 1984. (1480)



The Institute having enrolled its first students on a number of first degree programmes in Autumn 1980, offers degree and postgraduate programmes in Science, Engineering, Business, Computing, Communications, Languages and Accounting. A major new building development for 2,000 student places in Science and Engineering is being planned.

Applications are invited for the following positions:

Head of Electronic Engineering
Head of Mechanical Engineering
Head of Physical Sciences

The title of Professor will be awarded to an appropriate appointee.

Candidates should be well qualified academically; they should have substantial research interests and should also have had industrial, business, academic or research experience.

Application forms and further details are available from the Personnel Office, National Institute for Higher Education, Glasnevin, Dublin 9. Closing date: 8 July 1984.

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Colleges of Higher Education

EALING COLLEGE OF HIGHER EDUCATION
Applications are invited from suitably qualified and experienced persons for the following posts:HEAD OF DEPARTMENT IN THE SCHOOL OF LAW
AND SOCIAL SCIENCE (Grade V) (Re-advertisement)

The successful applicant will be responsible for the Law Department and the Professional Law Course. He/she should have relevant experience in Higher Education, teaching and research, and professional qualifications in the field of research and consultancy such that he/she can contribute significantly to the on-going progress of research and consultancy in the College. The applicant will be required to make a commitment to both teaching and research. Candidates who have previously applied will be automatically reconsidered.

READER IN THE SCHOOL OF LANGUAGE STUDIES
Language Teaching and Language Learning (Re-advertisement)

Applicants should have an outstanding personal record of research, publication and/or consultancy. They will be involved with the working of the Language Learning Unit and the funding of research or consultancy. In addition, applicants should be capable of guiding and co-ordinating the research and development activity of a strong team with a broad research base.

LII/LI IN LAW (Re-advertisement)

Applicants should be suitably qualified to teach Law at undergraduate level. Applicants must have a legal qualification. An interest in Company Law or Employment Law would be an advantage.

LI/PS PERSONNEL MANAGEMENT
(Re-advertisement)

Applicants should be suitably qualified to teach Personnel Management and Behavioural Science for our range of business studies courses and to teach Higher BTEC and professional IPM courses. The successful candidate will be a graduate with further postgraduate qualifications of a professional academic nature in a relevant field.

LI/IN LIBRARY AND INFORMATION
SERVICES

The School offers BA (Hons) and Postgraduate Diploma/Library and Information Studies. Applicants should have a thorough knowledge of library and information service requirements and provision, entailing some subject expertise in science and technology.

RESEARCH ASSISTANTS

There are two vacancies in the School of Economics and Accounting. Both posts are tenable for one year from 1 September 1984.

1. COMPUTER AIDED INSTRUCTION (Re-advertisement)

To work on a project that involves the evaluation of computer aided instruction in accounting education. Candidates should have a good honours degree or higher degree in education and an interest in computing. An accounting qualification is not required.

2. EAST EUROPEAN ECONOMIES

To work on a project examining the significance for the East European economies of their reintegration into world trade relations. The project will be with particular reference to the GDR, Hungary and Poland.

Applicants will be academically qualified in one of the following: Economics; International Finance; International Relations. A working knowledge of German will be a major advantage.

SALARIES: Grade V Head of Department: £14,430 pa inc. LII £11,670 to a possible maximum of £14,430 pa inc. LI £8,550 - £12,550 pa inc. Research Assistant: £5,870 pa inc.

All posts are tenable from 1 September 1984, or as soon as possible thereafter, unless otherwise stated. Further details from The Staffing Office, Ealing College of Higher Education, St Mary's Road, London W5 6FF. CLOSING DATE: 22 JUNE 1984. (1482)

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British Accreditation
Council for
Independent Further
and Higher EducationEXECUTIVE
SECRETARY

The British Accreditation Council for Independent Further and Higher Education is seeking suitable candidates for the post of Executive Secretary.

The Executive Secretary will report to the Board of BACFHE and will have the responsibility of setting up and implementing the accreditation inspection procedures for the independent education sector as required by the Board. The office of BACFHE will be established at the Middlesex Polytechnic (Southgate site).

Salary Negotiable. Applicants should have a sound background in educational administration and experience of public relations work.

Further details can be obtained on written application to Mrs. J. M. Clarke, c/o The British Council, (Room W453) 10 Spring Gardens, London SW1A 2BN.

The closing date for the receipt of completed applications is Friday 26 June 1984.

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Polytechnics cont

MANCHESTER
POLYTECHNICFACULTY OF
COMMUNITY STUDIES
DIDSBOURY SCHOOL OF
EDUCATIONLECTURER II IN THE
DEPARTMENT OF
SCIENCE EDUCATION (3
POSTS)

Applications are invited from graduates with recent successful teaching experience to join an active team involved with pre-service and inservice courses for teachers. Primary school experience would be an advantage.

Two posts are available in SCIENCE (a background in physical science preferred) and one in MATHEMATICS.

At least one of these posts will be a year full time temporary appointment. Enquiries from teachers wishing to consider an appointment should be sent to: Mrs. J. M. Clarke, c/o The British Council, (Room W453) 10 Spring Gardens, London SW1A 2BN.

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